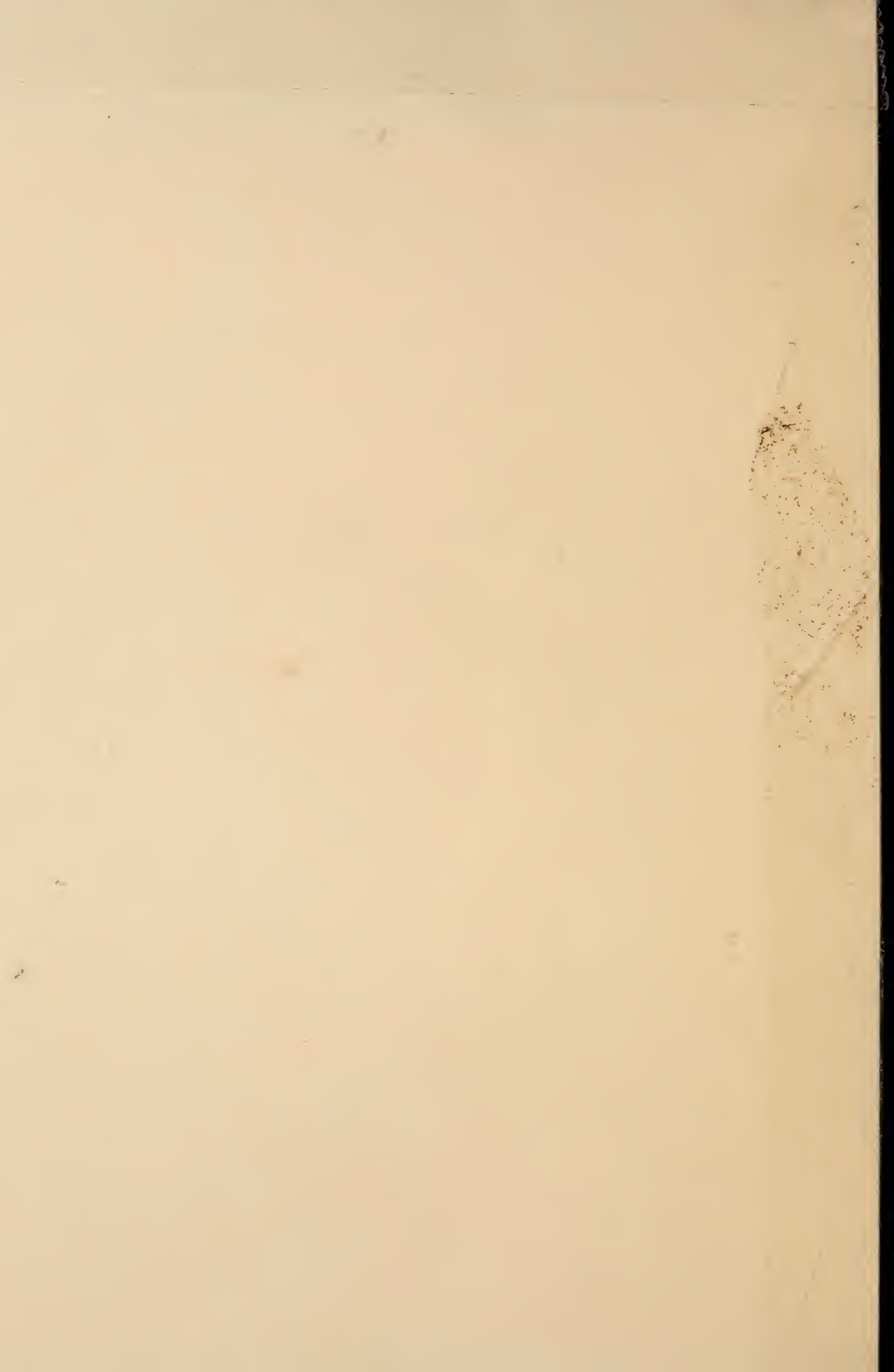


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**United States Department of Agriculture
Agricultural Marketing Service**

Service and Regulatory Announcements No. 156

**RULES AND REGULATIONS
UNDER THE FEDERAL SEED ACT**

**RULES AND REGULATIONS OF THE SECRETARY OF
AGRICULTURE AND JOINT RULES AND REGULATIONS
OF THE SECRETARY OF AGRICULTURE AND THE
SECRETARY OF THE TREASURY**

**FEDERAL SEED ACT OF AUGUST 9, 1939
(53 STAT. 1275)**

**Issued March 1940
Reprinted with amendments, June 1960**



United States Department of Agriculture
Agricultural Marketing Service

SERVICE AND REGULATORY ANNOUNCEMENTS NO. 156

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RULES AND REGULATIONS OF THE SECRETARY OF
AGRICULTURE UNDER THE FEDERAL SEED ACT

(Title 7, Ch. I, Pt. 201 of the Code of Federal Regulations)

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DEFINITIONS

201.1 Meaning of words.—Words in these regulations in the singular form shall be deemed to import the plural, and vice versa, as the case may demand.

201.2 Terms defined.—When used in these regulations the terms as defined in section 101 of the act, unless modified in this section as provided in the act, shall apply with equal force and effect. In addition, as used in these rules and regulations:

(a) *The act.*—The term “act” means the Federal Seed Act, approved August 9, 1939 (53 Stat. 1275);

(b) *Person.*—The term “person” includes a partnership, corporation, company, society, association, receiver, or trustee;

(c) *Secretary.*—The term “Secretary” means the Secretary or Acting Secretary of Agriculture of the United States;

(d) *Hearing clerk.*—The term “Hearing clerk” means the hearing clerk, Office of the Solicitor, United States Department of Agriculture, Washington, D. C.;

(e) *Respondent.*—The term “respondent” means a person against whom a complaint is issued;

(f) *Examiner.*—The term “examiner” means an employee of the Department of Agriculture, designated by the Secretary to conduct hearings under the act, and the rules and regulations;

(g) *Federal Register.*—The term “Federal Register” means the publication provided by the act of July 26, 1935 (49 Stat. 500), and acts supplementary thereto and amendatory thereof;

(h) *Agricultural seeds.*—The term “agricultural seeds” means the following kinds of grass, forage, and field crop seeds:

<i>Alfalfa</i> — <i>Medicago sativa</i> L.	Bentgrass or—Continued
<i>Alfilaria</i> — <i>Erodium cicutarium</i> (L.)	Bentgrass, creeping— <i>Agrostis palus-</i>
L’her.	<i>tris</i> Huds.
<i>Alyceclover</i> — <i>Alysicarpus vaginalis</i> (L.)	Bentgrass, velvet— <i>Agrostis canina</i> L.
DC.	Bermuda-grass— <i>Cynodon dactylon</i> (L.)
<i>Bahiagrass</i> — <i>Paspalum notatum</i>	Pers.
Fluegge.	Bluegrass, annual— <i>Poa annua</i> L.
<i>Barley</i> — <i>Hordeum vulgare</i> L.	Bluegrass, bulbous— <i>Poa bulbosa</i> L.
<i>Bean, adzuki</i> — <i>Phaseolus angularis</i>	Bluegrass, Canada— <i>Poa compressa</i> L.
Willd.	Bluegrass, Kentucky— <i>Poa pratensis</i> L.
<i>Bean, field</i> — <i>Phaseolus vulgaris</i> L.	Bluegrass, Nevada— <i>Poa nevadensis</i>
<i>Bean, mung</i> — <i>Phaseolus aureus</i> Roxb.	Vasey.
<i>Bean</i> —(see Velvetbean).	Bluegrass, rough— <i>Poa trivialis</i> L.
<i>Beet, field</i> — <i>Beta vulgaris</i> L.	Bluegrass, Texas— <i>Poa arachnifera</i>
<i>Beet, sugar</i> — <i>Beta vulgaris</i> L.	Torr.
<i>Beggarweed</i> — <i>Desmodium tortuosum</i>	Bluegrass, wood— <i>Poa nemoralis</i> L.
(Sev.) DC.	Bluestem, big— <i>Andropogon furcatus</i>
<i>Bentgrass or</i>	Muhl.
<i>Bentgrass, colonial</i> — <i>Agrostis tenuis</i>	Bluestem, little— <i>Andropogon scoparius</i>
Sibth.	Michx.

- Bluestem, sand—*Andropogon hallii* Hack.
 Bluestem, yellow—*Andropogon ischaemum* L.
 Brome, field—*Bromus arvensis* L.
 Brome, mountain—*Bromus marginatus* Nees.
 Brome, smooth—*Bromus inermis* Leyss.
 Broomcorn—*Sorghum vulgare* var. *technicum* (Koern.) Jav.
 Buckwheat—*Fagopyrum esculentum* Moench (*F. vulgare* Hill.).
 Buffalograss—*Buchloe dactyloides* (Nutt.) Engl.
 Buffelgrass—*Pennisetum ciliare* (L.) Link.
 Bur-clover, California—*Medicago hispida* Gaertn.
 Bur-clover, spotted—*Medicago arabica* (L.) DC.
 Burnet, little—*Sanguisorba minor* Scop.
 Buttonclover—*Medicago orbicularis* (L.) All.
 Canarygrass—*Phalaris canariensis* L.
 Canarygrass, reed—*Phalaris arundinacea* L.
 Carpetgrass—*Axonopus affinis* Chase.
 Castorbean—*Ricinus communis* L.
 Chess, soft—*Bromus mollis* L.
 Chickpea—*Cicer arietinum* L.
 Clover, alsike—*Trifolium hybridum* L.
 Clover, berseem—*Trifolium alexandrinum* L.
 Clover, cluster—*Trifolium glomeratum* L.
 Clover, crimson—*Trifolium incarnatum* L.
 Clover, large hop—*Trifolium procumbens* L.
 Clover, small hop (suckling)—*Trifolium dubium* Sibth.
 Clover, ladino—*Trifolium repens* L.
 Clover, lappa—*Trifolium lappaceum* L.
 Clover, Persian—*Trifolium resupinatum* L.
 Clover, red or
 Red clover, mammoth—*Trifolium pratense* L.
 Red clover, medium—*Trifolium pratense* L.
 Clover, rose—*Trifolium hirtum* All.
 Clover, strawberry—*Trifolium fragiferum* L.
 Clover, sub (subterranean)—*Trifolium subterraneum* L.
 Clover, white—*Trifolium repens* L. (also see Clover, ladino).
 Clover, (also see Alyceclover, Bur-clover, Buttonclover, Sourclover, Sweetclover).
 Corn, field—*Zea mays* L.
 Corn, pop—*Zea mays* var. *everta* (Sturt.) Bailey.
 Cotton—*Gossypium* spp.
 Cowpea—*Vigna sinensis* (Torner) Savi.
 Crested dogtail—*Cynosurus cristatus* L.
 Crotalaria, lance—*Crotalaria lanceolata* E. Mey.
 Crotalaria, showy—*Crotalaria spectabilis* Roth.
 Crotalaria, slenderleaf—*Crotalaria intermedia* Kotschy.
 Crotalaria, striped—*Crotalaria striata* D.C. (*C mucronata* DESV.)
 Crotalaria, Sunn—*Crotalaria juncea* L.
 Crownvetch—*Coronilla varia* L.
 Dallisgrass—*Paspalum dilatatum* Poir.
 Dichondra—*Dichondra repens* Forst.
 Dropseed, sand—*Sporobolus cryptandrus* (Torr.) A. Gray
 Emmer—*Triticum dicoccum* Schrank.
 Fescue, Chewings—*Festuca rubra* var. *commutata* Gaud.
 Fescue, hair—*Festuca capillata* Lam.
 Fescue, meadow—*Festuca elatior* L.
 Fescue, red—*Festuca rubra* L.
 Fescue, sheep—*Festuca ovina* L.
 Fescue, tall—*Festuca arundinacea* Schreb.
 Flax—*Linum usitatissimum* L.
 Grama, blue—*Bouteloua gracilis* (H. B. K.) Lag.
 Grama, side-oats—*Bouteloua curtipendula* (Michx.) Torr.
 Guar—*Cyamopsis tetragonoloba* (L.) Taub.
 Guineagrass—*Panicum maximum* Jacq.
 Hardinggrass—*Phalaris tuberosa* var. *stenoptera* (Hack.) Hitchc.
 Hemp—*Cannabis sativa* L.
 Indiangrass, yellow—*Sorghastrum nutans* (L.) Nash.
 Indigo, hairy—*Indigofera hirsuta* L.
 Japanese lawngrass—*Zoysia japonica* Steud.
 Johnsongrass—*Sorghum halepense* (L.) Pers.
 Kudzu—*Pueraria thunbergiana* (Sieb. and Zucc.) Benth.
 Lentil—*Lens culinaris* Medic.
 Lespedeza, Korean—*Lespedeza stipulacea* Maxim.
 Lespedeza, sericea or Chinese—*Lespedeza cuneata* (Dumont) D. Don. [*L. sericea* (Thunb.) Miq.]
 Lespedeza, Siberian—*Lespedeza hedy-saroides* (Pallas) Ricker.
 Lespedeza, striate—*Lespedeza striata* (Thunb.) Hook. and Arn.
 Lovegrass, sand—*Eragrostis trichodes* (Nutt.) Wood.
 Lovegrass, weeping—*Eragrostis curvula* (Schrad.) Nees.
 Lupine, blue—*Lupinus angustifolius* L.
 Lupine, white—*Lupinus albus* L.
 Lupine, yellow—*Lupinus luteus* L.
 Manilagrass—*Zoysia matrella* (L.) Merr.
 Meadow foxtail—*Alopecurus pratensis* L.
 Medick, black—*Medicago lupulina* L.

- Millet, browntop—*Panicum ramosum* L.
Millet, foxtail—*Setaria italica* (L.) Beauv.
Millet, Japanese—*Echinochloa crusgalli* var. *frumentacea* (Roxb.) Wight.
Millet, pearl—*Pennisetum glaucum* (L.) R. Br.
Millet, proso—*Panicum miliaceum* L.
Molassesgrass—*Melinis minutiflora* Beauv.
Mustard—*Brassica juncea* (L.) Coss.
Mustard, black—*Brassica nigra* Koch.
Mustard, white—*Brassica hirta* Moench.
Napiergrass—*Pennisetum purpureum* Schumach.
Oat—*Avena Byzantina* C. Koch, *A. sativa* L., *A. nuda* L.
Oatgrass, tall—*Arrhenatherum elatius* (L.) Mert. and Koch.
Orchardgrass—*Dactylis glomerata* L.
Panicgrass, blue—*Panicum antidotale* Retz.
Peanut—*Arachis hypogaea* L.
Pea, field—*Pisum sativum* var. *arvense* (L.) Poir.
Poa trivialis—(see Bluegrass, rough).
Rape, annual—*Brassica napus* var. *annua* Koch.
Rape, bird—*Brassica campestris* L.
Rape, turnip—*Brassica campestris* vars.
Rape, winter—*Brassica napus* var. *biennis* (Schubl. and Mart.) Reichb.
Redtop—*Agrostis alba* L.
Rescuegrass—*Bromus catharticus* Vahl.
Rhodesgrass—*Chloris gayana* Kunth.
Rice—*Oryza sativa* L.
Ricegrass, Indian—*Oryzopsis hymenoides* (Roem. and Schult.) Ricker.
Roughpea—*Lathyrus hirsutus* L.
Rye—*Secale cereale* L.
Ryegrass or
Ryegrass, Italian—*Lolium multiflorum* Lam.
Ryegrass, perennial—*Lolium perenne* L.
Safflower—*Carthamus tinctorius* L.
Sainfoin—*Onobrychis viciaefolia* Scop.
Sesame—*Sesamum indicum* L.
Sesbania—*Sesbania exaltata* (Raf.) Torr.
Smilo—*Oryzopsis miliacea* (L.) Benth. and Hook.
Sorghum—*Sorghum vulgare* Pers.
Sorghums alnum—*Sorghum alnum* Parodi.
Sorghum—Rhizomatous derivatives of a Johnsongrass x sorghum cross or a Johnsongrass x Sudangrass cross.
Sourclover—*Melilotus indica* (L.) All.
Soybean—*Glycine max* (L.) Merrill [*Soja max* (L.) Piper].
Spelt—*Triticum spelta* L.
Sudangrass—*Sorghum vulgare* var. *sudanense* (Piper) Hitchc.
Sunflower—*Helianthus annuus* L.
Sweetclover or
Sweetclover, white—*Melilotus alba* Desr.
Sweetclover, yellow—*Melilotus officinalis* (L.) Lam.
Sweet vernalgrass—*Anthoxanthum odoratum* L.
Switchgrass—*Panicum virgatum* L.
Timothy—*Phleum pratense* L.
Tobacco—*Nicotiana tabacum* L.
Trefoil, big—*Lotus uliginosus* Schkuhr.
Trefoil, birdsfoot—*Lotus corniculatus* L.
Vaseygrass—*Paspalum urvillei* Steud.
Veldtgrass—*Ehrharta calycina* J. E. Smith.
Velvetbean—*Stizolobium deeringianum* Bort.
Velvetgrass—*Holcus lanatus* L.
Vetch or
Vetch, common—*Vicia sativa* L.
Vetch, hairy—*Vicia villosa* Roth.
Vetch, Hungarian—*Vicia pannonica* Grantz.
Vetch, monantha—*Vicia articulata* Hornem. (*V. monantha* Desf.)
Vetch, narrowleaf—*Vicia angustifolia* (L.) Reich.
Vetch, purple—*Vicia atropurpurea* Desf.
Vetch, woollypod—*Vicia dasycarpa* Ten.
Wheat or
Wheat, common—*Triticum aestivum* L. (*T. vulgare* Vill.)
Wheat, club—*Triticum compactum* Host.
Wheat, durum—*Triticum durum* Desf.
Wheat, Polish—*Triticum polonicum* L.
Wheat, poulard—*Triticum turgidum* L.
Wheatgrass, crested or fairway crested—*Agropyron cristatum* (L.) Gaertn.
Wheatgrass, crested or standard crested—*Agropyron desertorum* (Fisch.) Schult.
Wheatgrass, intermediate—*Agropyron intermedium* (Host) Beauv.
Wheatgrass, pubescent—*Agropyron trichophorum* (Link) Richt.
Wheatgrass, slender—*Agropyron pauciflorum* (Schwein.) Hitchc. (*A. trachycaulum* Steud.)
Wheatgrass, tall—*Agropyron elongatum* (Host) Beauv.
Wheatgrass, western—*Agropyron smithii* Rydb.
Wild-rye, Canada—*Elymus canadensis* L.
Wild-rye, Russian—*Elymus junceus* Fisch.
Zoysia japonica—(see Japanese lawn-grass)
Zoysia matrella—(see Manilagrass)

(i) *Vegetable seeds*.—The term “vegetable seeds” means the seeds of the following kinds that are or may be grown in gardens or on truck farms and are or may be generally known and sold under the name of vegetable seeds:

Artichoke— <i>Cynara scolymus</i> L.	Eggplant— <i>Solanum melongena</i> var. <i>esculentum</i> Nees.
Asparagus— <i>Asparagus officinalis</i> L.	Endive— <i>Cichorium endivia</i> L.
Asparagusbean— <i>Vigna sesquipedalis</i> (L.) Fruwirth.	Kale— <i>Brassica oleracea</i> var. <i>acephala</i> DC.
Bean— <i>Phaseolus vulgaris</i> L.	Kale, Chinese— <i>Brassica oleracea</i> var. <i>alboglabra</i> (Bailey) Musil.
Bean, lima— <i>Phaseolus lunatus</i> var. <i>macrocarpus</i> Van Eseltine.	Kohlrabi— <i>Brassica oleracea</i> var. <i>gongylodes</i> L.
Bean, runner— <i>Phaseolus coccineus</i> L.	Leek— <i>Allium porrum</i> L.
Beet— <i>Beta vulgaris</i> L.	Lettuce— <i>Lactuca sativa</i> L.
Broadbean— <i>Vicia faba</i> L.	Muskmelon— <i>Cucumis melo</i> L.
Broccoli— <i>Brassica oleracea</i> var. <i>botrytis</i> L.	Mustard— <i>Brassica juncea</i> (L.) Coss.
Brussels sprouts— <i>Brassica oleracea</i> var. <i>gemmifera</i> Zenker.	Mustard, spinach— <i>Brassica perviridis</i> Bailey.
Cabbage— <i>Brassica oleracea</i> var. <i>capitata</i> L.	Okra— <i>Hibiscus esculentus</i> L.
Cantaloupe—(see muskmelon)	Onion— <i>Allium cepa</i> L.
Cardoon— <i>Cynara cardunculus</i> L.	Onion, Welsh— <i>Allium fistulosum</i> L.
Carrot— <i>Daucus carota</i> L.	Pak-choi— <i>Brassica chinensis</i> L.
Cauliflower— <i>Brassica oleracea</i> var. <i>botrytis</i> L.	Parsley— <i>Petroselinum hortense</i> Hoffm.
Celeriac— <i>Apium graveolens</i> var. <i>rapaceum</i> DC.	Parsnip— <i>Pastinaca sativa</i> L.
Celery— <i>Apium graveolens</i> var. <i>dulce</i> (Mill.) Pers.	Pea— <i>Pisum sativum</i> L.
Chard, Swiss— <i>Beta vulgaris</i> var. <i>cicla</i> L.	Pepper— <i>Capsicum</i> spp.
Chicory— <i>Cichorium intybus</i> L.	Pumpkin— <i>Cucurbita pepo</i> L., <i>C. moschata</i> Duchesne and <i>C. maxima</i> Duchesne.
Chinese cabbage— <i>Brassica pekinensis</i> (Lour.) Rupr.	Radish— <i>Raphanus sativus</i> L.
Citron— <i>Citrullus vulgaris</i> Schrad.	Rhubarb— <i>Rheum rhaponticum</i> L.
Collards— <i>Brassica oleracea</i> var. <i>acephala</i> DC.	Rutabaga— <i>Brassica napus</i> var. <i>napobrassica</i> (L.) Reichb.
Corn, sweet— <i>Zea mays</i> L.	Salsify— <i>Tragopogon porrifolius</i> L.
Cornsalad— <i>Valerianella locusta</i> var. <i>olitoria</i> Pall.	Sorrel— <i>Rumex acetosa</i> L.
Cowpea— <i>Vigna sinensis</i> (Torner) Savi.	Soybean— <i>Glycine max</i> (L.) Merrill [Soja <i>max</i> (L.) Piper].
Cress, garden— <i>Lepidium sativum</i> L.	Spinach— <i>Spinacia oleracea</i> L.
Cress, water— <i>Rorippa nasturtium-acquaticum</i> (L.) Britt. and Rendle.	Spinach, New Zealand— <i>Tetragonia expansa</i> Thunb.
Cucumber— <i>Cucumis sativus</i> L.	Squash— <i>Cucurbita Pepo</i> L., <i>C. moschata</i> . Duchesne and <i>C. maxima</i> Duchesne.
Dandelion— <i>Taraxacum officinale</i> Weber.	Tomato— <i>Lycopersicon esculentum</i> Mill.
	Tomato, husk— <i>Physalis pubescens</i> L.
	Turnip— <i>Brassica rapa</i> L.
	Watermelon— <i>Citrullus vulgaris</i> Schrad.

(j) *Regulations*.—The term “regulations” means the rules and regulations promulgated by the Secretary of Agriculture and the joint rules and regulations promulgated by the Secretary of the Treasury and the Secretary of Agriculture under the act.

(k) *Joint regulations*.—The term “joint regulations” means the joint rules and regulations promulgated by the Secretary of the Treasury and the Secretary of Agriculture.

(l) (1) *Complete record*.—The term “complete record” means information which relates to the origin, germination, and purity (including variety) of each lot of agricultural seed transported or delivered for transportation in interstate commerce, or which relates to the germination and variety of each lot of vegetable seed transported or delivered for transportation in interstate commerce. Such information includes seed samples and records of declarations, labels, purchases, sales, cleaning, bulking, handling, storage, analyses, tests, and examinations.

(2) The complete record kept by each person for each lot of seed consists of the information pertaining to his own transactions and the information received from others pertaining to their transactions with respect to each lot of seed.

(m) *Declaration*.—The term “declaration” means a written statement of a grower, shipper, processor, dealer, or importer giving for any lot of seed the kind, variety, type, origin, or the use for which the seed is intended.

(n) *Declaration of origin*.—The term “declaration of origin” means a declaration of a grower or country shipper in the United States stating for each lot of agricultural seed (a) kind of seed, (b) lot number or other identification, (c) State where seed was grown and the county where grown if to be labeled showing the origin as a portion of a State, (d) quantity of seed, (e) date shipped or delivered, (f) to whom sold, shipped, or delivered, and (g) the signature and address of the grower or country shipper issuing the declaration. If the declaration is issued by a grower and the identity of the person delivering the seed is unknown to the receiver, the motor-vehicle license number or other identification of the delivering agency, should be entered on the declaration by the receiver. If a country shipper’s declaration includes seed shipped or delivered to him by another country shipper, it shall give for each lot the other country shipper’s lot number as included in the other country shipper’s declaration of origin.

(o) *Declaration of kind, variety, or type*.—The term “declaration of kind, variety, or type” means a declaration of a grower stating for each lot of seed (a) the name of the kind, variety, or type stated in accordance with sections 201.9 to 201.12, (b) lot number or other identification, (c) place where seed was grown, (d) quantity of seed, (e) date shipped or delivered, (f) to whom sold, shipped, or delivered, and (g) the signature and address of the grower issuing the declaration.

(p) *Mixture*.—The term “mixture” means seeds consisting of more than one kind or variety, each present in excess of 5 percent of the whole.

(r) *Grower*.—The term “grower” means any person who produces directly or through a growing contract, or is a seed-crop sharer in seed which is sold, offered for sale, transported, or offered for transportation.

(s) *Country shipper*.—The term “country shipper” means any person located in a producing area who purchases seed locally for shipment to seed dealers or to other country shippers.

(t) *Dealer*.—The term “dealer” means any person who cleans, processes, sells, offers for sale, transports, or delivers for transportation seeds in interstate commerce.

(u) *Consumer*.—The term “consumer” means any person who purchases or otherwise obtains seed for sowing but not for resale.

(v) *Lot of seed*.—The term “lot of seed” means a definite quantity of seed identified by a lot number, every portion or bag of which is uniform, within permitted tolerances, for the factors which appear in the labeling.

(w) *Purity*.—The term “purity” means the name or names of the kind, type, or variety and the percentage or percentages thereof; the percentage of other agricultural seed or crop seed; the percentage of weed seeds, including noxious-weed seeds; the percentage of inert matter; and the names of the noxious-weed seeds and the rate of occurrence of each.

(y) *Hybrid*.—The term “hybrid” means the first generation seed of a cross produced by controlling the pollination and by combining (1) two, three, or four inbred lines; (2) one inbred or a single cross with an open-pollinated variety; or (3) two varieties or species, except open-pollinated varieties of corn (*Zea mays*). The second generation and subsequent generations from such crosses shall not be regarded as hybrids. Hybrid designations shall be treated as variety names.

(z) *Processing*.—For the purpose of section 203 (b) (2) (B) of the act the term “processing” means cleaning, scarifying, or blending to obtain uniform quality, and other operations which would change the purity or germination of the seed and therefore require retesting to determine the quality of the seed, but does not include operations such as packaging, labeling, blending together of uniform lots of the same kind or variety without cleaning, or the preparation of a mixture without cleaning, any of which would not require retesting to determine the quality of the seed.

ADMINISTRATION

201.3 Administrator.—The Administrator of the Agricultural Marketing Service shall perform such duties as the Secretary may require in enforcing the provisions of the act and of the regulations in this part.

RECORDS FOR AGRICULTURAL AND VEGETABLE SEEDS

201.4 Maintenance and accessibility.—(a) Each person transporting or delivering for transportation in interstate commerce agricultural or vegetable seed subject to the act shall keep for a period of 3 years a complete record of each lot of such seed so transported or delivered, including a sample representing each lot of such seed, except that any seed sample may be discarded 1 year after the entire lot represented by such sample has been disposed of by such person.

(b) Each sample of agricultural seed retained shall be at least the weight required for a noxious-weed seed examination as set forth in § 201.46 and each sample of vegetable seed retained shall consist of at least 400 seeds. The record shall be kept in such manner as to permit comparison with the records required to be kept by other persons for the same lot of seed so that the origin, germination and purity (including variety) of agricultural seed and the germination and variety of vegetable seed may be traced from the grower to the ultimate consumer and so that the lot of seed may be correctly labeled. The record shall be accessible for inspection by the authorized agents of the Secretary for purposes of the effective administration of the act at any time during customary business hours.

201.5 Origin.—The complete record for any lot of seed of alfalfa, red clover, white clover, or field corn, except hybrid seed corn, shall include a declaration of origin, or information traceable to a declaration of origin or evidence showing that a declaration of origin could not be obtained.

Each country shipper shall retain a copy of each declaration which he issues and shall attach thereto a detailed record showing the names and addresses of growers or country shippers from whom the seed was purchased, the quantity of seed purchased from each, and the date on which it was delivered to him.

201.6 Germination.—The complete record shall include the records of all laboratory tests for germination and hard seed for each lot of seed offered for transportation in whole or in part. The record shall show the kind of seed, lot number, date of test, percentage of germination and hard seeds, and such other information as may be necessary to show the method used.

201.7 Purity (Including Variety).—The complete record for any lot of seed shall include (a) records of analyses, tests, and examinations including statements of weed seeds, noxious-weed seeds, inert matter, other agricultural seeds, and of any determinations of kind, variety, or type and a description of the methods used; and (b) for seeds indistinguishable by seed characteristics, records necessary to disclose the kind, variety, or type, including a grower's declaration of kind, variety, or type, or an invoice, or other document establishing the kind, variety, or type to be that stated, and a representative sample of the seed. The grower's declaration shall be obtained and kept by the person procuring the seed from the grower. A copy of the grower's declaration and a sample of the seed shall be retained by the grower.

LABELING AGRICULTURAL SEEDS

201.8 Contents of the label.—The label shall contain the required information in any form that is clearly legible and complies with the regulations in this part. The information may be on a tag attached securely to the container, or may be printed in a conspicuous manner on a side or the top of the container. The label may contain information in addition to that required by the act, provided such information is not misleading.

201.9 Kind.—The name of each kind of seed present in excess of 5 percent shall be shown on the label and need not be accompanied by the word "kind." When two or more kinds of seed are named on the label, the name of each kind shall be accompanied by the percentage of each. When only one kind of seed is present in excess of 5 percent and no variety name or type designation is shown, the percentage of that kind may be shown as "pure seed" and such percentage shall apply only to seed of the kind named.

201.10 Variety.—If the name of the variety is given, the name may be associated with the name of the kind with or without the words "kind and variety." The percentage in such case, which may be shown as "pure seed," shall apply only to seed of the variety named. If separate percentages for the kind and the variety are shown, the name of the kind and the name of the variety shall be clearly associated with the respective percentages. When two or more

varieties are present in excess of 5 percent and are named on the label, the name of each variety shall be accompanied by the percentage of each.

201.11 Type.—When type is designated, such designation may be associated with the name of the kind but shall in all cases be clearly associated with the word “type.” The percentage, which may be shown as “pure seed” shall apply only to the type designated. If separate percentages for the kind and the type are shown, such percentages shall be clearly associated with the name of the kind and the name of the type.

If the type designation does not include a variety name, it shall include a name descriptive of a group of varieties of similar character and the pure seed shall be at least 90 percent of one or more varieties all of which conform to the type designation.

If the name of a variety is used as a part of the type designation, the seed shall be of that variety and may contain: (1) An admixture of seed of other indistinguishable varieties of the same kind and of similar character; or, (2) an admixture of indistinguishable seeds having genetic characteristics dissimilar to the variety named by reason of cross-fertilization with other varieties. In either case, at least 90 percent of the pure seed shall be of the variety named or upon growth shall produce plants having characteristics similar to the variety named.

201.12 Name of kind and variety.—The representation of kind or kind and variety shall be confined to the name of the kind or kind and variety determined in accordance with § 201.34. The name shall not have affixed thereto words or terms that create a misleading impression as to the history or characteristics of the kind or variety.

201.13 Lot number or other identification.—The lot number or other identification shall be shown on the label and shall be the same as that used in the records pertaining to the same lot of seed.

201.14 Origin.—Alfalfa, red clover, white clover, and field corn (except hybrid seed corn) shall be labeled to show: (1) The origin, if known; or (2) if the origin is not known, the statement “origin unknown.”

Whenever such seed originates in more than one State, the name of each State and the percentage of seed originating in each State shall be given in the order of its predominance. Whenever such seed originates in a portion of a State, it shall be permissible to label such seed as originating in such portion of a State.

Proper precautions to insure that the origin of seed is known shall include the maintaining of a record as described in section 201.5. The examination of the seed and any pertinent facts may be taken into consideration in determining whether proper precautions have been taken to insure the origin to be that which is represented.

201.15 Weed seeds.—The percentage of weed seeds shall include seeds of plants considered weeds in the State into which the seed is offered for transportation or transported and shall include noxious-weed seeds.

201.16 Noxious-weed seeds.—The names of the kinds of noxious-weed seeds and the rate of occurrence of each shall be expressed in the label in accordance with, and the rate of occurrence shall not exceed the rate permitted by, the law and regulations of the State into which the seed is offered for transportation or is transported. If in the course of such transportation, or thereafter, the seed is diverted to another State of destination, the person or persons responsible for such diversion shall cause the seed to be relabeled with respect to noxious-weed seed content, if necessary, to conform to the laws and regulations of the State to which the seed is diverted.

201.17 Noxious-weed seeds in the District of Columbia.—Noxious-weed seeds in the District of Columbia are: Quackgrass (*Agropyron repens*), Canada thistle (*Cirsium arvense*), bindweed (*Convolvulus arvensis*), Bermuda grass (*Cynodon dactylon*), and wild onion bulblets (*Allium vineale*). The name and number per ounce of each kind of such noxious-weed seeds present shall be shown on the label.

201.18 Other agricultural seeds (crop seeds).—Agricultural seeds other than those included in the percentage or percentages of kind, variety, or type may be expressed as “crop seeds” or “other crop seeds,” but the percentage shall include collectively all kinds, varieties, or types not named upon the label.

201.19 Inert matter.—The label shall show the percentage by weight of inert matter.

201.20 Germination.—The label shall show the percentage of germination for each kind or kind and variety or kind and type of agricultural seed present in

excess of 5 percent or shown in the labeling to be present in a proportion of 5 percent or less: *Provided*, That this shall not apply to freshly harvested Kentucky bluegrass or sugar beet seed transported or delivered for transportation during the months of July, August, and September for seeding during the year in which the seed is produced.

201.21 Hard seed.—The label shall show the percentage of hard seed, if any is present, for any seed required to be labeled as to the percentage of germination, and the percentage of hard seed shall not be included as part of the germination percentage.

201.22 Date of test.—The label shall show the month and year in which the germination test was completed. No more than 5 calendar months shall have elapsed between the last day of the month in which the germination test was completed and the date of transportation or delivery for transportation in interstate commerce.

201.23 Name of shipper or consignee.—The full name and address of either the shipper or consignee shall appear upon the label. If the name and address of the shipper are not shown upon the label, a code designation identifying the shipper shall be shown.

201.24 Code designation.—The code designation used in lieu of the full name and address of the person who transports or delivers seed for transportation in interstate commerce shall be approved by the Deputy Administrator for Marketing Services, Agricultural Marketing Service, or such other person as may be designated by him for the purpose. When used, the code designation shall appear on the label in a clear and legible manner.

LABELING VEGETABLE SEEDS

201.25 Contents of the label.—Vegetable seed in packets and in larger containers shall be labeled with the required information in any form that is clearly legible. Any tag used shall be securely attached to the container. The label may contain information in addition to that required by the act, provided such information is not misleading.

201.26 Kind and variety.—The label shall bear the name of each kind and variety present as determined in accordance with § 201.34. If two or more kinds or varieties are present the percentage of each shall be shown. The name shall not have affixed thereto words or terms that create a misleading impression as to the history or characteristics of the kind or variety.

201.27 Name of shipper or consignee.—The full name and address of either the shipper, or consignee, shall appear upon the label except that if the name and address of the shipper are not shown, a code designation identifying the shipper shall be shown.

201.28 Code designation.—The code designation used in lieu of the full name and address of the person who transports or delivers seed for transportation in interstate commerce shall be approved by the Deputy Administrator for Marketing Services, Agricultural Marketing Service, or such other person as may be designated by him for the purpose. When used, the code designation shall appear on the label in a clear and legible manner.

201.29 Germination equal to or above standard.—Vegetable seeds which have a germination equal to or better than the standard set forth in section 201.31, need not bear a statement showing the percentage of germination.

201.30 Germination below standard.—Each variety of vegetable seed which has a germination percentage less than the standard set forth in § 201.31 shall have the words 'Below Standard' clearly shown in a conspicuous place on the label or on the face of the container in type no smaller than 8 point. Each variety of vegetable seed which germinates less than the standard shall also be labeled to show the percentage of germination and the percentage of any hard seed present and the month and year in which the germination test was completed. The percentage of hard seed shall not be included in the percentage of germination. No more than 5 calendar months shall have elapsed between the last day of the month in which the germination test was completed and the date of transportation or delivery for transportation in interstate commerce.

201.31 Germination standards for vegetable seeds in interstate commerce.—The following germination standards for vegetable seeds in interstate commerce, which shall be construed to include hard seed, are determined and established under section 403(c) of the act:

	Percent		Percent
Artichoke -----	60	Cornsalad -----	70
Asparagus -----	70	Cowpea -----	75
Asparagusbean -----	75	Cress, garden -----	60
Beans, garden [varieties other than Improved Tendergreen (Resistant Tendergreen), King Green, Logan, Processor, Ranger, Rival, Seminole, Tenderbest, Tenderlong 15, Topcrop, Topmost, Wade, White-seeded Tendergreen, and Woodruff's Hyscore]. -----	75	Cress, water -----	40
Beans, garden [varieties Improved Tendergreen (Resistant Tender- green), King Green, Logan, Proc- essor, Ranger, Rival, Seminole, Tenderbest, Tenderlong 15, Top- crop, Topmost, Wade, White- seeded Tendergreen, and Wood- ruff's Hyscore]. -----	70	Cucumber -----	80
Bean, lima -----	70	Dandelion -----	45
Bean, runner -----	75	Eggplant -----	60
Beet -----	65	Endive -----	70
Broadbean -----	75	Kale -----	75
Broccoli -----	75	Kale, Chinese -----	75
Brussels sprouts -----	70	Kohlrabi -----	75
Cabbage -----	75	Leek -----	60
Cantaloupe (See muskmelon)		Lettuce -----	80
Cardoon -----	60	Muskmelon -----	75
Carrot -----	55	Mustard -----	75
Cauliflower -----	75	Mustard, spinach -----	75
Celeriac -----	55	Okra -----	50
Celery -----	55	Onion -----	70
Chard, Swiss -----	65	Onion, Welsh -----	70
Chicory -----	65	Pak-choi -----	75
Chinese cabbage -----	75	Parsley -----	60
Citron -----	65	Parsnip -----	60
Collards -----	80	Pea -----	80
Corn, sweet -----	75	Pepper -----	55
		Pumpkin -----	75
		Radish -----	75
		Rhubarb -----	60
		Rutabaga -----	75
		Salsify -----	75
		Sorrel -----	60
		Soybean -----	75
		Spinach -----	60
		Spinach, New Zealand -----	40
		Squash -----	75
		Tomato -----	75
		Tomato, husk -----	50
		Turnip -----	80
		Watermelon -----	70

LABELING IN GENERAL

201.31a Labeling treated seed.

(a) *Contents of label.*—Any agricultural seed or any mixture thereof or any vegetable seed or any mixture thereof, for seeding purposes, that has been treated shall be labeled in type no smaller than 8 points to indicate that the seed has been treated and to show the name of any substance or a description of any process (other than application of a substance) used in such treatment, in accordance with this section; for example,

Treated with -----
(Name of substance or process)
or ----- treated.
(Name of substance or process)

If the substance used in such treatment in the amount remaining with the seed is harmful to humans or other vertebrate animals, the seed shall also bear a label containing additional statements as required by paragraphs (c) and (d) of this section. The label shall contain the required information in any form that is clearly legible and complies with the regulations in this part. The information may be on the tag bearing the analysis information or on a separate tag, or it may be printed in a conspicuous manner on a side or top of the container.

(b) *Name of substance.*—The name of any substance as required by paragraph (a) of this section shall be the commonly accepted coined, chemical (generic), or abbreviated chemical name. Commonly accepted coined names are free for general use by the public, are not private trade-marks, and are commonly recognized as names of particular substances; such as thiram, captan, lindane, and dichlone. Examples of commonly accepted chemical (generic) names are: bluestone, calcium carbonate, cuprous oxide, zinc hydrox-

ide, hexachlorobenzene, and ethyl mercury acetate. The terms "mercury" or "mercurial" may be used in labeling all types of mercurials. Examples of commonly accepted abbreviated chemical names are: BHC (1,2,3,4,5,6-Hexachlorocyclohexane) and DDT (dichloro diphenyl trichloroethane).

(c) *Mercurials and similarly toxic substances.*—(1) Seed treated with a mercurial or similarly toxic substance, if any amount remains with the seed, shall be labeled to show a representation of a skull and crossbones at least twice the size of the type used for information required to be on the label under paragraph (a) and shall also include in red letters on a background of distinctly contrasting color a statement worded substantially as follows: "This seed has been treated with Poison," "Treated with Poison," "Poison treated," or "Poison." The word "Poison" shall appear in type no smaller than 8 points.

(2) Mercurials and similarly toxic substances include the following:

Aldrin, technical.	Ethyl propyl mercury bromide.
Demeton.	Hydroxymercuric cresol.
Diieldrin.	Hydroxy mercurichlorophenol.
Endrin.	Hydroxy mercurinitrophenol.
Heptachlor.	Mercuric chloride; corrosive sublimate.
O,O-diethyl S-(ethylthiomethyl) phosphorodithiolate.	Mercurous chloride; calomel.
O,O-diethyl S-2-(ethylthio) ethyl phosphorodithiolate.	Mercuric oxide.
Phenyl amino cadmium dilactate.	Methyl mercury dicyan diamide.
Mercurials (all types):	Methyl mercury hydroxide.
Ethyl mercury acetate.	Methyl mercury nitril.
N-ethylmercuri-1,2,3,6-tetrahydro-3,6-endomethano-3,4,5,6,7,7-hexachlorophthalimide.	2-methoxy ethyl mercury acetate.
Ethyl mercury chloride.	Mercury-Zinc-chromate.
Ethyl mercury 2,3-dihydroxy propyl mercaptide.	Phenyl mercury acetate.
Ethyl mercury perthiocyanate.	Phenyl mercury ammonium acetate.
Ethyl mercury phosphate.	Phenyl mercury chloride.
Ethyl mercury p-toluene sulfonanilide.	Phenyl mercury ethylene diamine acetate.
	Phenyl mercury formamide.
	Phenyl mercury salicylate.
	Phenyl mercury urea.
	Sodium ethyl mercury salicylate.

Any amount of such substances remaining with the seed is considered harmful within the meaning of this section.

(d) *Other harmful substances.*—If a substance, other than one which would be classified as a mercurial or similarly toxic substance under paragraph (c) of this section, is used in the treatment of seed, and the amount of remaining with the seed is harmful to humans or other vertebrate animals, the seed shall be labeled with an appropriate caution statement in type no smaller than 8 points worded substantially as follows: "Do not use for food," "Do not use for feed," "Do not use for oil purposes," or "Do not use for food, feed, or oil purposes." Any amount of any substance, not within paragraph (c) of this section, used in the treatment of seed, which remains with the seed is considered harmful within the meaning of this section when the seed is in containers of more than 4 ounces, except that the following substances shall not be deemed harmful when present at a rate less than the number of parts per million indicated:

Allethrin—2 p.p.m.	Piperonyl butoxide—8 p.p.m.
Malathion—8 p.p.m.	Pyrethrins—1 p.p.m.
Methoxychlor—2 p.p.m.	

201.32 Screenings.—Screenings shipped in interstate commerce, if in containers, shall be labeled in a legible manner with letters not smaller than 18 point type and, if in bulk, shall be invoiced with the words "Screenings for processing—not for seeding."

201.33 Seed in bulk or large quantities; seed for cleaning or processing.

(a) In the case of seed in bulk, the information required under sections 201 (a), (b), and (i) of the act shall appear in the invoice or other records accompanying and pertaining to such seed. If the seed is in containers and in quantities of 20,000 pounds or more, regardless of the number of lots included, the information required on each container under § 201(a), (b), and (i) of the act need not be shown on each container; *Provided*, That: (1) The omission from each container of a label with the required information is with the knowledge and consent of the consignee prior to the transportation or delivery for trans-

portation of such seed in interstate commerce; (2) each container has stenciled upon it or bears a label containing a lot designation; and (3) the invoice or other records accompanying and pertaining to such seed bear the various statements required for the respective seeds.

(b) Seed consigned to a seed cleaning or processing establishment, for cleaning or processing for seeding purposes, need not be labeled to show the information required on each container under sections 201 (a), (b), and (i) of the act if it is in bulk, or in containers and in quantities of 20,000 pounds or more regardless of the number of lots involved, and the invoice or other records accompanying and pertaining to such seed show that it is "Seed for processing," or, if the seed is in containers and in quantities less than 20,000 pounds and each container bears a label with the words "Seed for processing." If any such seed is later to be labeled as to origin and/or variety, the origin and/or variety as the case may be, shall be shown on the invoice if the seed is in bulk, otherwise, on a label, at the time of transportation to such establishment, except that if it is covered by a declaration of origin and/or variety it will be sufficient if the lot designation appearing in the declaration is placed on the invoice if the seed is in bulk, or on a label if the seed is in containers, regardless of the quantity.

201.34 Kind, variety and type; designation as hybrid.—(a) *Indistinguishable seed.*—Proper precautions to insure that the kind or variety or type of indistinguishable agricultural or vegetable seeds is properly stated shall include the maintaining of the records described in § 201.7. The examination of the seed and any pertinent facts may be taken into consideration in determining whether proper precautions have been taken to insure the kind, variety, or type to be that which is shown.

(b) *Name of kind.*—The name of each kind of agricultural or vegetable seed is the name listed in § 201.2(h) or (i), respectively, except that a name which has become synonymous through broad general usage may be substituted therefor, provided the name does not apply to more than one kind and is not misleading.

(c) *Hybrid designation.*—Seed shall not be designated in labeling as "hybrid" seed unless it comes within the definition of "hybrid" in § 201.2 (y).

(d) *Name of variety.*—The name of each variety of agricultural or vegetable seed is the name determined in accordance with the following considerations:

(1) The variety name shall represent a subdivision of a kind, which is characterized by growth, plant, fruit, seed, or other characters by which it can be differentiated from other sorts of the same kind.

(2) Except as otherwise provided in this section, the name of a new variety shall be the name given by the originator or discoverer of the variety, except that in the event the originator or discoverer of a new unnamed variety, at the time seed of the variety is first introduced into channels of commerce of the United States for sale to the public, cannot or chooses not to name the variety, the name of the variety shall be the first name under which the seed is introduced into such commerce. However, if the variety name so provided is in a language not using the Roman alphabet, the variety shall be given a name by the person authorized under this paragraph to name the variety, in a language using the Roman alphabet.

(3) The variety name shall not be misleading. The same variety name shall not be assigned to more than one variety of the same kind of seed.

(4) The status under the Federal Seed Act of a variety name is not modified by the registration of such name as a trademark.

(5) Names of varieties which through broad general usage prior to the effective date of this section¹ were recognized variety names, except for hybrid seed corn, shall be considered variety names without regard to the principles stated in subparagraph (2) of this paragraph.

(6) The variety name for any variety of hybrid seed corn first introduced into commercial channels in the United States for sale prior to October 20, 1951 shall be any name used for such variety in such channels prior to that date. The variety name for any variety of hybrid seed corn first introduced into commercial channels in the United States for sale on or after October 20, 1951, shall be the name assigned in accordance with subparagraphs (1) through (4) of this paragraph.

(e) *List of variety names.*—(Explanatory note—The list of variety names included in this section when not listed are included in the following named

¹ Effective July 28, 1956.

publications which may be obtained from the Seed Branch, Grain Division, Agricultural Marketing Service, Washington 25, D.C. These lists do not preclude the use of names not on the lists but entitled to be recognized under paragraph (d) of this section.)

(1) *Beans (Vegetable snapbeans)*.—"Snap Bean Variety Names included in Sec. 201.34 (e) of the Regulations under the Federal Seed Act and Descriptions"

(2) *Cabbage*.—"Cabbage Variety Names included in Sec. 201.34 (e) of the Regulations under the Federal Seed Act and Descriptions"

(3) *Onions, hybrid*.—"Hybrid Onion Variety Names included in Sec. 201.34 (e) of the Regulations under the Federal Seed Act and Descriptions"

(4) *Soybeans*.—"Soybean Variety Names included in Sec. 201.34 (e) of the Regulations under the Federal Seed Act and Descriptions"

(5) *Striate lespedeza*.—Common, Kobe, Tennessee 76.

(6) *Sorghum*.—"Sorghum Variety Names Included in Sec. 201.34 (e) of the Regulations under the Federal Seed Act."

(7) *Broomcorn*.—"Broomcorn Variety Names Included in Sec. 201.34 (e) of the Regulations under the Federal Seed Act."

201.35 Blank spaces.—Blank spaces on the label shall be deemed to imply the word "None," when such interpretation is reasonable.

201.36 The words "free" and "none."—The words "free" and "none" shall be construed to mean that none were found in a test complying with the methods set forth in sections 201.45 to 201.52.

MODIFYING STATEMENTS

201.36a Disclaimers and nonwarranties.—A disclaimer, nonwarranty, or limited warranty used in any invoice or other labeling, or advertisement shall not directly or indirectly deny or modify any information required by the act or the regulations in this part.

ADVERTISING

201.36b Name of kind and variety; designation as hybrid.—(a) The representation of the name of a kind or kind and variety of seed in any advertisement subject to the act shall be confined to the name of the kind or kind and variety determined in accordance with § 201.34. The name shall not have associated therewith words or terms that create a misleading impression as to the history or characteristics of the kind or kind and variety. Descriptive terms and firm names may be used in kind or variety names provided the descriptive terms or firm names are a part of the name of the kind or variety of seed; for example, Stringless Green Pod, Detroit Dark Red, Black Seeded Simpson and Henderson Bush Lima. Seed shall not be designated as hybrid seed in any advertisement subject to the act unless it comes within the definition of "hybrid" in § 201.2 (y).

(b) Terms descriptive as to color, shape, size, habit of growth, disease resistance, or other characteristics of the kind or variety may be associated with the name of the kind or variety provided it is done in a manner which clearly indicates the descriptive term is not a part of the name of the kind or variety; for example, Oshkosh pepper (yellow), Copenhagen Market (round head) cabbage, and Kentucky Wonder pole bean.

(c) Terms descriptive of quality or origin, terms descriptive of the basis for representations made, and terms taken from trade-marks may be associated with the name of the kind or variety of seed provided the terms are clearly identified as being other than part of the name of the kind or variety; for example, Fancy quality redtop, Idaho origin alfalfa, Growers' affidavit of variety Atlas sorgo, and Ox brand Golden Cross corn.

(d) Terms descriptive of the manner or method of production or processing the seed (for example, certified, registered, delinted, scarified, treated, and hulled), may be associated with the name of the kind or variety of seed, providing such terms are not misleading.

INSPECTION

201.37 Authorization.—When authorized by the Administrator of the Agricultural Marketing Service, or by such other person as may be designated for the purpose, Federal employees and qualified State officials, for the purposes of the act, may draw samples of, secure information and inspect records pertaining to, and otherwise inspect seeds and screenings subject to the act.

201.38 Importations.—Prior to release into the commerce of the United States, imported seed and screenings shall be inspected as provided in sections 201.208 and 201.209.

SAMPLING IN THE ADMINISTRATION OF THE ACT

201.39 General procedure.—(a) In order to secure a representative sample, equal portions shall be taken from evenly distributed parts of the quantity of seed or screenings to be sampled. Access shall be had to all parts of that quantity.

(b) For free-flowing seed in bags or bulk, a probe or trier shall be used. For small free-flowing seed in bags a probe or trier long enough to sample all portions of the bag should be used.

(c) Non-free-flowing seed, such as certain grass seed, uncleaned seed or screenings, difficult to sample with a probe or trier, shall be sampled by thrusting the hand into the bulk and withdrawing representative portions.

(d) As the seed or screenings are sampled each portion shall be examined and if there appears to be a lack of uniformity, the portions shall not be combined but shall be retained as separate samples to determine such lack of uniformity as may exist.

(e) When the portions appear to be uniform, they shall be combined to form a composite sample.

201.40 Bulk.—Bulk seeds or screenings shall be sampled by inserting a long probe or thrusting the hand into the bulk as circumstances require in at least seven uniformly distributed parts of the quantity being sampled.

201.41 Bags.—(a) In quantities of five bags or less each bag shall be sampled.

(b) In quantities of more than five bags, at least every fifth bag but not less than five bags shall be sampled.

(c) Samples shall be drawn from unopened bags except under circumstances where the identity of the seed has been preserved.

201.42 Small containers.—In sampling seed in small containers which it is not practical to sample as required in 201.41, entire unopened containers may be taken in sufficient number to supply a minimum size sample as required in 201.43. The sample may consist of the contents of one container, or two or more containers when combined.

201.43 Size of sample.—The following are minimum sizes of samples of agricultural seed, vegetable seed, and screenings to be submitted for analysis, test, or examination:

(a) Two ounces of grass seed not otherwise mentioned, white or alsike clover, or seeds not larger than these.

(b) Five ounces of red or crimson clover, alfalfa, lespedeza, ryegrass, brome-grass, millet, flax, rape, or seeds of similar size.

(c) One pound of Sudan grass, sorghum, proso, hemp, or seeds of similar size.

(d) Two pounds of cereals, vetch, or seeds of similar or larger size.

(e) Two quarts of screenings.

(f) Vegetable seed samples shall consist of at least 400 seeds.

201.44 Forwarding samples.—Before being forwarded for analysis, test, or examination, the containers of samples shall be properly sealed and identified in such manner as may be prescribed by the Agricultural Marketing Service.

PURITY ANALYSIS IN THE ADMINISTRATION OF THE ACT

201.45 Obtaining the working sample.—(a) The working sample on which the actual analysis is made shall be taken from the submitted sample in such a manner that it will be representative.

(b) The sample shall be repeatedly divided to the weight to be used for the working sample. Some form of efficient mechanical divider should be used. In case the proper mechanical divider cannot be used or is not available, the sample shall be thoroughly mixed and placed in a pile and the pile shall be repeatedly divided into halves until a sample of the desired weight remains.

201.46 Weight of working sample.—For the detailed purity analysis and noxious-weed seed examination the working samples shall be at least the weights set forth in table 1. In mixtures the weight of the sample for purity analysis and the weight of the sample for noxious-weed seed examination shall be determined by the kind (or group of kinds of similar size) which comprises the major proportion of the sample.

TABLE 1.—Weight of working sample

Name of seed	Minimum weight for purity analysis	Minimum weight for noxious-weed seed examination	Approximate number of seeds per gram
AGRICULTURAL SEED			
	Grams	Grams	Number
Alfalfa— <i>Medicago sativa</i>	5	50	500
Alfilaria— <i>Erodium cicutarium</i>	5	50	441
Alyceclover— <i>Alysicarpus vaginalis</i>	5	50	664
Bahiagrass— <i>Paspalum notatum</i> :			
Var. Pensacola.....	5	50	-----
All other vars.	10	50	366
Barley— <i>Hordeum vulgare</i>	100	500	30
Bean:			
Adzuki— <i>Phaseolus angularis</i>	500	500	11
Field— <i>Phaseolus vulgaris</i>	500	500	4
Mung— <i>Phaseolus aureus</i>	100	500	24
Beet, field— <i>Beta vulgaris</i>	50	300	54
Beet, sugar— <i>Beta vulgaris</i>	50	300	54
Beggarwood, Florida— <i>Desmodium tortuosum</i>	5	50	442
Bentgrass:			
Colonial (incl. Astoria and Highland)—			
<i>Agrostis tenuis</i>	1½	25	19,231
Creeping— <i>Agrostis palustris</i>	1½	25	17,196
Velvet— <i>Agrostis canina</i>	1½	25	23,810
Bermuda-grass— <i>Cynodon dactylon</i>	1	25	3,940
Bluegrass:			
Annual— <i>Poa annua</i>	1	25	2,636
Bulbous— <i>Poa bulbosa</i>	2	35	1,020
Canada— <i>Poa compressa</i>	1	25	5,500
Kentucky (incl. var. Merion)—			
<i>Poa pratensis</i>	1	25	4,800
Nevada— <i>Poa nevadensis</i>	1	25	2,304
Rough— <i>Poa trivialis</i>	1	25	5,600
Texas— <i>Poa arachnifera</i>	1	25	2,500
Wood— <i>Poa nemoralis</i>	1	25	7,097
Bluestem:			
Big— <i>Andropogon gerardi</i>	10	50	336
Little— <i>Andropogon scoparius</i>	5	50	560
Sand— <i>Andropogon hallii</i>	10	50	233
Yellow— <i>Andropogon ischaemum</i>	2	35	-----
Brome:			
Field— <i>Bromus arvensis</i>	5	50	431
Mountain— <i>Bromus marginatus</i>	25	150	141
Smooth— <i>Bromus inermis</i>	5	50	300
Broomcorn— <i>Sorghum vulgare</i> var. <i>technicum</i>	50	300	60
Buckwheat— <i>Fagopyrum esculentum</i>	50	300	45
Buffalograss— <i>Buchloe dactyloides</i> :			
(Burs).....	50	300	110
(Caryopses).....	2	35	738
Buffelgrass— <i>Pennisetum ciliare</i>	10	50	-----
Bur-clover, California— <i>Medicago hispida</i> (in bur).....	50	300	-----
Bur-clover, California— <i>Medicago hispida</i> (out of bur).....	10	50	375
Bur-clover, spotted— <i>Medicago arabica</i> (in bur).....	50	300	49
Bur-clover, spotted— <i>Medicago arabica</i> (out of bur).....	10	50	550
Burnet, little— <i>Sanguisorba minor</i>	25	150	108
Buttonclover— <i>Medicago orbicularis</i>	10	50	337
Canarygrass— <i>Phalaris canariensis</i>	25	150	150
Canarygrass, reed— <i>Phalaris arundinacea</i>	2	35	1,200
Carpetgrass— <i>Axonopus affinis</i>	1	25	2,475
Castorbean— <i>Ricinus communis</i>	500	500	5
Chess, soft— <i>Bromus mollis</i>	5	50	-----
Chickpea— <i>Cicer arietinum</i>	500	500	2
Clover:			
Alsike— <i>Trifolium hybridum</i>	2	35	1,500
Berseem— <i>Trifolium alexandrinum</i>	5	50	456
Cluster— <i>Trifolium glomeratum</i>	1	25	2,924
Crimson— <i>Trifolium incarnatum</i>	10	50	330
Ladino— <i>Trifolium repens</i>	2	35	1,937
Lappa— <i>Trifolium lappaceum</i>	2	35	1,500
Large hop— <i>Trifolium procumbens</i> (<i>T. campestre</i>).....	1	25	5,434
Persian— <i>Trifolium resupinatum</i>	2	35	1,416
Red— <i>Trifolium pratense</i>	5	50	600
Rose— <i>Trifolium hirtum</i>	5	50	358
Small hop (Suckling)— <i>Trifolium dubium</i>	2	35	1,948
Strawberry— <i>Trifolium fragiferum</i>	5	50	635
Sub— <i>Trifolium subterraneum</i>	25	150	119
White— <i>Trifolium repens</i>	2	35	1,500
Corn:			
Field— <i>Zea mays</i>	500	500	3
Pop— <i>Zea mays</i> var. <i>evarta</i>	500	500	-----
Cotton— <i>Gossypium</i> spp.	500	500	8

TABLE 1.—Weight of working sample—Continued

Name of seed	Minimum weight for purity analysis	Minimum weight for noxious-weed seed examination	Approximate number of seeds per gram
AGRICULTURAL SEED—continued			
	Grams	Grams	Number
Cowpea— <i>Vigna sinensis</i>	500	500	8
Crested dogtail— <i>Cynosurus cristatus</i>	2	35	1,900
Crotalaria:			
Lance— <i>Crotalaria lanceolata</i>	10	50	375
Showy— <i>Crotalaria spectabilis</i>	25	150	80
Slenderleaf— <i>Crotalaria intermedia</i>	10	50	207
Striped— <i>Crotalaria mucronata</i>	10	50	215
Sunn— <i>Crotalaria juncea</i>	100	500	36
Crownvetch— <i>Coronilla varia</i>	10	50	304
Dallisgrass— <i>Paspalum dilatatum</i>	¹ 2	35	592
Dichondra— <i>Dichondra repens</i>	5	50	472
Dropseed, sand— <i>Sporobolus cryptandrus</i>	¹ / ₂	25	11,927
Emmer— <i>Triticum dicoccum</i>	100	500	25
Fescue:			
Chewings— <i>Festuca rubra</i> var. <i>commutata</i>	2	35	1,200
Hair— <i>Festuca capillata</i>	1	25	3,200
Meadow— <i>Festuca elatior</i>	5	50	500
Red— <i>Festuca rubra</i>	2	35	1,200
Sheep— <i>Festuca ovina</i>	2	35	-----
Tall— <i>Festuca arundinacea</i>	5	50	500
Flax— <i>Linum usitatissimum</i>	15	100	178
Gramma:			
Blue— <i>Bouteloua gracilis</i>	2	35	1,977
Side-oats— <i>Bouteloua curtipendula</i>	5	50	422
Guar— <i>Cyamopsis tetragonoloba</i>	100	500	34
Guineagrass— <i>Panicum maximum</i>	5	50	2,207
Hardinggrass— <i>Phalaris tuberosa</i> var. <i>stenoptera</i>	5	50	750
Hemp— <i>Cannabis sativa</i>	50	300	46
Indiangrass, yellow— <i>Sorghastrum nutans</i>	10	50	364
Indigo, hairy— <i>Indigofera hirsuta</i>	10	50	437
Japanese lawngrass— <i>Zoysia japonica</i>	2	35	3,012
Johnsongrass— <i>Sorghum halepense</i>	10	50	290
Kudzu— <i>Pueraria thunbergiana</i>	25	150	81
Lentil— <i>Lens culinaris</i>	50	300	42
Lespedeza:			
Korean— <i>Lespedeza stipulacea</i>	5	50	525
Sericea or Chinese— <i>Lespedeza cuneata</i> (L. sericea).....	5	50	820
Siberian— <i>Lespedeza hedysaroides</i>	5	50	820
Striate (Common, Kobe, Tenn. 76) <i>Lespedeza striata</i>	5	50	750
Lovegrass, sand— <i>Eragrostis trichodes</i>	1	25	3,550
Lovegrass, weeping— <i>Eragrostis curvula</i>	1	25	3,282
Lupine:			
Blue— <i>Lupinus angustifolius</i>	500	500	7
White— <i>Lupinus albus</i>	500	500	7
Yellow— <i>Lupinus luteus</i>	500	500	9
Manilagrass— <i>Zoysia matrella</i>	2	35	-----
Meadow foxtail— <i>Alopecurus pratensis</i>	2	35	1,200
Medick, black— <i>Medicago lupulina</i>	5	50	586
Millet:			
Browntop— <i>Panicum ramosum</i>	10	50	303
Foxtail—Such as Common, White Wonder, German, Hungarian, Siberian, or Golden— <i>Setaria italica</i>	5	50	470
Japanese— <i>Echinochloa crusgalli</i> var. <i>frumentacea</i>	10	50	320
Pearl— <i>Pennisetum glaucum</i>	25	150	194
Proso— <i>Panicum miliaceum</i>	25	150	180
Molassesgrass— <i>Melinis minutiflora</i>	1	25	15,000
Mustard:			
Black— <i>Brassica nigra</i>	5	50	1,256
White— <i>Brassica hirta</i>	25	150	162
Napiergrass— <i>Pennisetum purpurem</i>	5	50	-----
Oat— <i>Avena</i> spp.....	100	500	28
Oatgrass, tall— <i>Arrhenatherum elatius</i>	5	50	330
Orchardgrass— <i>Dactylis glomerata</i>	2	35	1,441
Panicgrass, blue— <i>Panicum antidotale</i>	2	35	1,448
Peanut— <i>Arachis hypogaea</i>	500	500	1-3
Pea, field— <i>Pisum sativum</i> var. <i>arvense</i>	500	500	4
Rape:			
Annual— <i>Brassica napus</i> var. <i>annua</i>	10	50	346
Bird— <i>Brassica campestris</i>	10	50	425
Turnip— <i>Brassica campestris</i> vars.....	10	50	536
Winter— <i>Brassica napus</i> var. <i>biennis</i>	10	50	230
Redtop— <i>Agrostis alba</i>	¹ / ₂	25	11,000
Rescuegrass— <i>Bromus catharticus</i>	25	150	144

¹ If the purity separation of Dallisgrass yields less than 400 seeds a duplicate analysis shall be made and the results shall be calculated on the basis of the 4-gram sample.

TABLE 1.—Weight of working sample—Continued

Name of seed	Minimum weight for purity analysis	Minimum weight for noxious-weed seed examination	Approximate number of seeds per gram
AGRICULTURAL SEED—continued			
	Grams	Grams	Number
Rhodegrass— <i>Chloris gayana</i>	1	25	4,724
Rice— <i>Oryza sativa</i>	100	500	66
Ricegrass, Indian— <i>Oryzopsis hymenoides</i>	10	50	308
Roughpea— <i>Lathyrus hirsutus</i>	100	500	39
Rye— <i>Secale cereale</i>	100	500	40
"Ryegrass" see ms.			
Italian— <i>Lolium multiflorum</i>	5	50	500
Perennial— <i>Lolium perenne</i>	5	50	500
Safflower— <i>Carthamus tinctorius</i>	100	500	29
Sainfoin— <i>Onobrychis viciaefolia</i>	50	300	50
Sesame— <i>Sesamum indicum</i>	10	50	360
Sesbania— <i>Sesbania exaltata</i>	25	150	105
Smilo— <i>Oryzopsis miliacea</i>	2	35	2,008
Sorghum:			
Grain and Sweet— <i>Sorghum vulgare</i>	50	300	50-55
Sorghum alnum— <i>Sorghum alnum</i>	25	150	159
Sorghum ²	25	150	150
Sourclover— <i>Melilotus indica</i>	5	50	662
Soybean— <i>Glycine max</i>	500	500	6-13
Spelt— <i>Triticum spelta</i>	100	500	25
Sudangrass— <i>Sorghum vulgare</i> var. <i>sudanense</i>	25	150	120
Sunflower (Cult.)— <i>Helianthus annuus</i>	100	500	-----
Sweetclover:			
White— <i>Melilotus alba</i>	5	50	570
Yellow— <i>Melilotus officinalis</i>	5	50	570
Sweet vernalgrass— <i>Anthoxanthum odoratum</i>	2	35	1,600
Switchgrass— <i>Panicum virgatum</i>	5	50	814
Timothy— <i>Phleum pratense</i>	2	35	2,500
Trefoil:			
Big— <i>Lotus uliginosus</i> (<i>L. major</i>).....	2	35	1,944
Birdsfoot— <i>Lotus corniculatus</i>	2	35	814
Vaseygrass— <i>Paspalum urvillei</i>	2	35	970
Veldtgrass— <i>Ehrharta calycina</i>	2	35	655
Velvetbean— <i>Stizolobium deeringianum</i>	500	500	2
Velvetgrass— <i>Holcus lanatus</i>	1	25	3,359
Vetch:			
Common— <i>Vicia sativa</i>	100	500	19
Hairy— <i>Vicia villosa</i>	100	500	36
Hungarian— <i>Vicia pannonica</i>	100	500	24
Monantha— <i>Vicia articulata</i> (<i>V. monantha</i>).....	100	500	-----
Narrowleaf— <i>Vicia angustifolia</i>	50	300	60
Purple— <i>Vicia atropurpurea</i>	100	500	22
Woollypod— <i>Vicia dasycarpa</i>	100	500	25
Wheat:			
Common— <i>Triticum aestivum</i>	100	500	25
Club— <i>Triticum compactum</i>	100	500	25
Durum— <i>Triticum durum</i>	100	500	25
Polish— <i>Triticum polonicum</i>	100	500	25
Poulard— <i>Triticum turgidum</i>	100	500	25
Wheatgrass:			
Fairway crested— <i>Agropyron cristatum</i>	5	50	714
Standard crested— <i>Agropyron desertorum</i>	10	50	425
Intermediate— <i>Agropyron intermedium</i>	10	50	230
Pubescent— <i>Agropyron trichophorum</i>	10	50	180
Slender— <i>Agropyron trachycaulum</i>	10	50	340
Tall— <i>Agropyron elongatum</i>	10	50	140
Western— <i>Agropyron smithii</i>	10	50	235
Wild-rye:			
Canada— <i>Elymus canadensis</i>	10	50	261
Russian— <i>Elymus junceus</i>	10	50	400
VEGETABLE SEED			
Artichoke— <i>Cynara scolymus</i>	100	500	24
Asparagus— <i>Asparagus officinalis</i>	100	500	25
Asparagusbean— <i>Vigna sesquipedalis</i>	100	500	8
Beans:			
Garden— <i>Phaseolus vulgaris</i>	500	500	4
Lima— <i>Phaseolus lunatus</i> var. <i>macrocarpus</i>	500	500	2
Runner— <i>Phaseolus coccineus</i>	500	500	1
Beet— <i>Beta vulgaris</i>	50	300	58
Broadbean— <i>Vicia faba</i>	500	500	-----
Broccoli— <i>Brassica oleracea</i> var. <i>botrytis</i>	10	50	315
Brussels sprouts— <i>Brassica oleracea</i> var. <i>gemmifera</i>	10	50	315
Cabbage— <i>Brassica oleracea</i> var. <i>capitata</i>	10	50	315
Cabbage, Chinese— <i>Brassica pekinensis</i>	5	50 ¹	633
Cardoon— <i>Cynara cardunculus</i>	100	500	-----
Carrot— <i>Daucus carota</i>	5	50	826

² Rhizomatous derivatives of a Johnsongrass × sorghum cross or a Johnsongrass × Sudangrass cross.

TABLE 1.—Weight of working sample—Continued

Name of seed	Minimum weight for purity analysis	Minimum weight for noxious-weed seed examination	Approximate number of seeds per gram
AGRICULTURAL SEED—continued			
	Grams	Grams	Number
Cauliflower— <i>Brassica oleracea</i> var. <i>botrytis</i>	10	50	315
Celeriac— <i>Apium graveolens</i> var. <i>rapaceum</i>	1	25	2,521
Celery— <i>Apium graveolens</i> var. <i>dulce</i>	1	25	2,521
Chard, Swiss— <i>Beta vulgaris</i> var. <i>cicla</i>	50	200	58
Chicory— <i>Cichorium intybus</i>	5	50	940
Citron— <i>Citrullus vulgaris</i>	500	500	11
Collards— <i>Brassica oleracea</i> var. <i>acephala</i>	10	50	315
Corn, sweet— <i>Zea mays</i>	500	500	-----
Cornsalad (Fetticus)— <i>Valerianella locusta</i> var. <i>olitoria</i>			
Vars. Fullhearted and Dark Green Full- hearted.....	5	50	-----
All other varieties.....	10	50	380
Cowpea— <i>Vigna sinensis</i>	500	500	8
Cress:			
Garden— <i>Lepidium sativum</i>	5	50	424
Water— <i>Rorippa nasturtium-aquaticum</i>	1	25	5,172
Cucumber— <i>Cucumis sativus</i>	100	500	38
Dandelion— <i>Taraxacum officinale</i>	2	35	1,240
Eggplant— <i>Solanum melongena</i> var. <i>esculentum</i>	10	50	228
Endive— <i>Cichorium endivia</i>	5	50	940
Kale— <i>Brassica oleracea</i> var. <i>acephala</i>	10	50	315
Kale, Chinese— <i>Brassica oleracea</i> var. <i>alboglabra</i>	10	50	-----
Kohlrabi— <i>Brassica oleracea</i> var. <i>gongylodes</i>	10	50	315
Leek— <i>Allium porrum</i>	10	50	396
Lettuce— <i>Lactuca sativa</i>	5	50	888
Muskmelon (cantaloup)— <i>Cucumis melo</i>	100	500	45
Mustard— <i>Brassica juncea</i>	5	50	624
Mustard, spinach— <i>Brassica perviridis</i>	5	50	536
Okra— <i>Hibiscus esculentus</i>	100	500	19
Onion— <i>Allium cepa</i>	10	50	341
Onion, Welsh— <i>Allium fistulosum</i>	10	50	-----
Pak-choi— <i>Brassica chinensis</i>	5	50	633
Parsley— <i>Petroselinum hortense</i> (<i>P. crispum</i>).....	5	50	648
Parsnip— <i>Pastinaca sativa</i>	10	50	429
Pea— <i>Pisum sativum</i>	500	500	3
Pepper— <i>Capsicum</i> spp.	25	150	(167)
Pumpkin— <i>Cucurbita pepo</i>	500	500	4
Radish— <i>Raphanus sativus</i>	50	300	75
Rhubarb— <i>Rheum rhaponticum</i>	50	300	60
Rutabaga— <i>Brassica napus</i> var. <i>napobrassica</i>	10	50	428
Salsify— <i>Tragopogon porrifolius</i>	50	300	66
Sorrel— <i>Rumex acetosa</i>	2	35	1,079
Soybean— <i>Glycine max</i>	500	500	6-13
Spinach— <i>Spinacia oleracea</i>	25	150	100
Spinach, New Zealand— <i>Tetragonia expansa</i>	100	500	13
Squash— <i>Cucurbita moschata</i> and <i>C. maxima</i>	500	500	14
Tomato— <i>Lycopersicon esculentum</i>	5	50	405
Tomato, husk— <i>Physalis pubescens</i>	2	35	1,240
Turnip— <i>Brassica rapa</i>	10	50	536
Watermelon— <i>Citrullus vulgaris</i>	500	500	11

201.47 Separation.—(a) The working sample shall be weighed in grams to four significant figures, and shall then be separated into four parts: (1) Kind or variety to be considered pure seed; (2) other crop seed; (3) weed seed; and (4) inert matter. Each of these four component parts shall be weighed in grams to four significant figures, and the percentage by weight of each part (based on the sum of the weights of the component parts and not on the original weight) shall be determined. The sum of the weights of the component parts shall be compared with the original weight of the working sample as a check against loss of material or other error.

(b) In the case of other crop seed and weed seed, the seeds of each species shall be separated, when possible.

The separation of the seed of the kind or variety considered pure seed must be on such a basis that the separation can be made definitely by seed characteristics.

(c) When samples of seed contain two or more similar kinds of seeds the separation of which in the entire working sample would be very difficult, it is permissible to separate and weigh the similar seeds as a group. From the purity working sample at least 400 seeds are to be taken indiscriminately and the separation made on this portion. The proportion of each kind is then deter-

mined by weight or, if the seeds are of similar weight, the proportion may be determined by count, and from this the percentage in the entire sample is calculated.

(d) With reference to classification of pure seed, other crop seed, and inert matter, applicable methods of determination may include visual examination, use of reflected light or specific gravity. This has reference particularly to insect-damaged, broken or diseased seeds, or sterile grass florets.

201.47a Seed unit.—The seed unit is the structure usually regarded as a seed in agricultural practices and in commercial channels. The seed unit may consist of one or more of the following structures:

- (a) True seeds;
- (b) Caryopses and florets in the grass family. In this family the pure seed unit also includes the following structures for the indicated kinds:
 - (1) Spikelet or paired spikelets with at least one caryopsis in the bluestems (*Andropogon*) and yellow Indiangrass (*Sorghastrum nutans*),
 - (2) Spikelet with at least one caryopsis in the gramas (*Bouteloua*), or spike with at least one caryopsis in side-oats grama (*B. curtipendula*),
 - (3) Bur or fertile floret of buffalograss (*Buchloe dactyloides*),
 - (4) Fascicle of buffelgrass (*Pennisetum ciliare*),
 - (5) Bulblet of bulbous bluegrass (*Poa bulbosa*);
- (c) Dry indehiscent fruits in the following plant families: Buckwheat (Polygonaceae), sunflower (Compositae), geranium (Geraniaceae), goosefoot (Chenopodiaceae), and valerian (Valerianaceae);
- (d) One- and two-seeded pods of small-seeded legumes, burs of the bur clovers, and pods of peanuts. (This does not preclude the shelling of small-seeded legumes for purposes of identification);
- (e) Fruits or half fruits in the carrot family (Umbelliferae);
- (f) Nutlets in the following plant families: Borage (Boraginaceae), mint (Labiatae), vervain (Verbenaceae);
- (g) "Seed balls" or portions thereof in beets (*Beta*), and fruits with accessory structures such as occur in New Zealand spinach (*Tetragonia expansa*).

201.47b Working samples.—The purity working sample is the sample on which the purity analysis is made. The noxious-weed seed working sample is the sample on which the noxious-weed examination is made.

201.48 Kind or variety considered pure seed.—The pure seed shall include all seeds of each kind or each kind and variety under consideration present in excess of 5 percent of the whole, and may include kinds and varieties present to an extent of 5 percent or less of the whole. The following shall be included with the pure seed:

- (a) Seeds that are immature, shriveled, cracked, insect-damaged or otherwise injured, except as provided in paragraph (i) of this section. (Seeds of legumes and crucifers with the seedcoat entirely removed shall be classified as inert matter. See § 201.51);
- (b) Pieces of broken seeds that are larger than one-half the original size;
- (c) Seeds that have started to germinate;
- (d) Seeds of Cucurbitaceae and Solanaceae consisting principally of seedcoat (usually referred to as empty seed);
- (e) Empty fruits (seed units) of species belonging to the following families: Sunflower (Compositae), buckwheat (Polygonaceae), carrot (Umbelliferae), valerian (Valerianaceae), mint (Labiatae), and other families in which the seed unit may be a dry, indehiscent, one-seeded fruit;
- (f) All seed units of grasses in which a caryopsis can be detected either by light pressure or by reflected light;
- (g) Multiple florets, or spikelets, of the following kinds of seeds when one or more of the florets contain a caryopsis: Bluegrass (*Poa*), tall meadow oatgrass (*Arrhenatherum elatius*), Rhodesgrass (*Chloris gayana*), bluestems (*Andropogon*), gramas (*Bouteloua*), and oats (*Avena*), and spikes of side-oats grama (*Bouteloua curtipendula*) that contain one or more caryopses; in the case of orchardgrass (*Dactylis glomerata*) all empty florets may be removed and classed as inert matter; or alternatively, all multiple florets may be weighed without detaching the empty florets in which case four-fifths ($4/5$) of the weight is added to the pure seed and one-fifth ($1/5$) to the inert matter;
- (h) Diseased seeds, except ergots, smut balls, and other fungus bodies which are to be classed as inert matter. (See 201.51);
- (i) Insect-damaged seeds, except (1) broken pieces that are one-half or less than the original size and (2) chalcid-damaged seeds of alfalfa, red clover, and similar kinds of small-seeded legumes;

(j) Seed units of New Zealand spinach and beets regardless of whether they contain true seeds; *Provided*, That in the case of segmented beet balls, small fragments which obviously do not contain true seeds shall be classified as inert matter.

201.49 Other crop seed.—Seeds of plants grown as crops (other than the kind or variety included in the pure seed) shall be considered other crop seeds, unless recognized as weed seeds by applicable laws, or regulations, or by general usage. All interpretations and definitions for “pure seed” in 201.48 shall also apply in determining whether seeds are other crop seed or inert matter.

201.50 Weed seed.—Seeds, bulblets, or tubers of plants recognized as weeds by applicable laws or regulations, or general usage shall be considered weed seeds. Badly injured weed seeds and empty, seedlike structures, including those of noxious-weed seeds, as described in 201.51, shall be considered inert matter and not weed seeds. When seeds of *Juncus tenuis*, or other species of *Juncus* having seeds of a similar size, are present they may be included with the inert matter. However, clusters of *Juncus* seeds shall be included with the weed seeds.

201.51 Inert matter.—Inert matter shall include seeds and seedlike structures from both crop and weed plants and other material not seeds as follows:

(a) Crop plants—

- (1) Broken seeds: Pieces of broken seeds one-half the original size or less;
- (2) Seeds of legumes and crucifers with the seedcoats entirely removed;
- (3) Glumes and empty florets except when considered pure seed or other crop seed under 201.48 and 201.49;

(4) Chalcid-damaged seeds of alfalfa, red clover, and similar kinds of small-seeded legumes;

(b) Weed plants—

(1) Damaged seeds (other than caryopses of grasses) with over one-half of the embryo missing;

(2) Damaged caryopses of grasses with over one-half of the root-shoot axis missing (the scutellum excluded); and glumes and empty florets of grasses;

(3) Seeds of legumes and species of *Brassica* with the seedcoats entirely removed;

(4) Empty fruits (seeds) such as occur in the following plant families: Sedge (Cyperaceae), buckwheat (Polygonaceae), morning-glory (Convolvulaceae), and sunflower (Compositae). (This is to be determined by visual examination, which may include dissection or the use of reflected light);

(5) Bulblets of wild onion and wild garlic (*Allium*) which are completely devoid of the husk and pass through a 10 x 10 mesh screen (10 mesh per inch) made of 26 gage (0.020 inch diameter) stainless steel wire; bulblets which are completely devoid of the husks and are retained on 10 x 10 mesh screen, but which show injury to the basal end; bulblets which show evident damage to the basal end and have part of the husk removed;

(6) Immature florets of quackgrass (*Agropyron repens*) in which the caryopses are less than one-third the length of the palea;

(7) Dodder (*Cuscuta*): Seeds which are either (i) fragile, (ii) ashy gray to creamy white in color, or (iii) badly shriveled;

(8) Buckhorn (*Plantago lanceolata*): Black seeds, with no brown color evident, whether shriveled or plump; (The color of questionable seeds should be determined under a magnification of approximately 10 X with strong light);

(9) Ragweed (*Ambrosia*): Seed with both the involucre and pericarp absent;

(c) Other matter—

(1) Nematode galls, including galls enveloped by the lemma and palea of grass florets;

(2) Fungus bodies, such as ergot and other sclerotia, and smut balls;

(3) All inert matter such as soil particles, sand, stones, chaff, stems, and leaves.

201.52 Noxious-weed seeds.—The determination of the number of seeds, bulblets, or tubers of individual noxious weeds present per unit weight should be made on at least the minimum quantities listed in Table 1: *Provided*, That if the following indicated numbers of a single kind of seed, bulblet, or tuber are found in the pure-seed analysis (or noxious-weed seed examination of a like amount) the occurrence of that species in the remainder of the bulk examined for noxious-weed seeds need not be noted: ½-gram purity working sample, 16 or more seeds; 1-gram purity working sample, 23 or more seeds; 2-gram purity working sample or larger, 30 or more seeds.

GERMINATION TESTS IN THE ADMINISTRATION OF THE ACT

201.53 Source of seeds for germination.—(a) When both burity and germination tests are required, seeds for germination shall be taken from the separation of the kind, variety, or type considered pure seed and shall be counted without discrimination as to size or appearance.

(b) When only a germination test is required and the pure seed is estimated or determined to be at least 98 percent, the pure seed for the germination test may be taken indiscriminately from a representative portion of the bulk.

(c) When only a germination test is required and the pure seed is found to be less than 98 percent, the seed for the test shall be obtained by separating the sample into two components as follows: (1) Pure seed and (2) other crop seed, weed seed, and inert matter. In making this separation at least $\frac{1}{4}$ of the quantity required for a regular purity analysis shall be used. The whole sample must be well mixed and divided in such a manner as to get a completely representative subsample.

201.54 Number of seeds for germination.—At least 400 seeds shall be tested for germination except that in mixtures, 200 seeds of each of those kinds present to the extent of 15 percent or less may be used in lieu of 400, in which case an additional 2 percent is to be added to the regular germination tolerances. The seeds shall be tested in replicate tests of 100 seeds or less.

201.55 Retests.—(a) In considering whether a retest is required a difference of 10 percent between any two 100-seed replicates is permitted when the average is 80 percent or above, and a difference of 15 percent when the average is below 80 percent. When all 4 replicates are in agreement (i.e., do not exceed the 10 and 15 percent limits) the average shall be used and a retest is not required. If three replicates are in agreement the median of the four replicates shall be used and a retest is not required. (The median of four replicates is the average of the two middle values). When no more than two replicates are in agreement, a retest is necessary. If, at the time of the prescribed final count there are indications that a satisfactory germination has not been obtained, such as the presence of firm ungerminated seeds, a retest should be made.

(b) Samples showing injury as a result of chemical treatments shall be retested in soil. The result of the soil test will be regarded as authentic.

(c) When one or more retests, or concurrent tests, are made in the same laboratory in accordance with this part by either (1) the same method, or (2) alternate methods, the results of all tests within tolerance shall be averaged. When the results obtained by different methods are not within tolerance of each other, the higher result shall be used.

201.55a Moisture and aeration of substratum.—(a) The substratum must be moist enough to supply the needed moisture to the seeds at all times. Excessive moisture which will restrict aeration of the seeds should be avoided. Except as provided for those kinds of seeds requiring high moisture levels of the germination media, the substrata should never be so wet that a film of water is formed around the seeds. For most kinds of seeds blotters or other paper substrata should not be so wet that by pressing, a film of water forms around the finger.

(b) The following formula may be used as a guide in the preparation of sand for germination tests:

$$\frac{118.3 \text{ cc. (1 gill) sand}}{\text{Its weight in grams}} \times 20.2 - 8.0 = \text{The number of cc. of water to add to each 100 grams of air-dry sand.}$$

(c) The amount of water provided by this formula is satisfactory for seeds the size of clovers and will have to be modified slightly, depending on the kind of seed being tested and the kind of sand used. For example, slightly more moisture should be added when the larger seeds are to be tested.

(d) In preparing soil tests water should be added to the soil until it can be formed into a ball when squeezed in the palm of the hand but will break freely when pressed between two fingers. After the soil has been moistened it should be rubbed through a sieve and put in the seed containers without packing.

(e) The addition of water subsequent to placing the seed in test will depend on the evaporation from the substrata in the germination chambers. Since the rate of evaporation will depend upon the relative humidity of the air, it is desirable to keep water in the germination chambers or to provide other means of supplying a relative humidity of approximately 95 percent. Germination tests should be observed at frequent intervals to insure an adequate moisture supply of the substrata at all times.

201.56 Interpretation.—(a) A seed shall be considered to have germinated when it has developed those essential structures which, for the kind of seed under consideration, are indicative of its ability to produce a normal plant under favorable conditions. Seedlings possessing those essential structures are referred to as normal seedlings. Abnormal seedlings, consisting of those which are broken, devoid of roots, malformed, or weak, and other types not possessing essential structures, shall not be considered to have germinated.

(b) Sand and/or soil tests may be used as a guide in determining the classification of questionable seedlings and the evaluation of germination tests made on approved artificial media. This is intended to provide a method of checking the reliability of tests made on artificial substrata when there may be doubt as to the proper evaluation of such tests.

(c) Seedlings infected with fungi or bacteria should be regarded as normal if all essential structures are present. A seedling that has been seriously damaged by bacteria or fungi from any source other than the specific seed should be regarded as normal if it is determined that all essential structures were present before the injury or damage occurred. Germination counts should be made on samples where contamination and decay are present at approximately 2-day intervals between the usual first count and the final count. During the progress of the germination test, seeds which are obviously dead and moldy and which may be a source of contamination of healthy seeds should be removed at each count and the number of such dead seeds should be recorded. When symptoms of certain diseases develop which can be readily recognized and identified, their presence should be noted.

(d) Seed units containing more than one seed or embryo such as New Zealand spinach seed, *Beta* seed, and seed units of grasses consisting of multiple florets, shall be tested as a single seed and shall be regarded as having germinated if they produce one or more normal seedlings.

(e) Standard guides for seedling interpretation shall include the photographs of normal and abnormal seedlings¹ identified by photo numbers in table 2 in 201.58 and the following descriptions for specific kinds and groups.

201.56-1 Goosefoot family (Chenopodiaceae) and Carpetweed family (Aizoaceae).—(a) Kinds of seed: Beet, swiss chard, mangel, spinach, and New Zealand spinach.

(b) A completely normal seedling of the kinds specified in paragraph (a) of this section should have a long, slender root with root hairs, a long, well-developed hypocotyl, two attached leaflike cotyledons and an intact but small epicotyl. Normal seedlings shall include those that have: (1) A well-developed, long, slender root with root hairs; (2) a stubby primary root provided the secondary roots are strong and the hypocotyl is near normal length, as in spinach; (3) at least one attached cotyledon, provided the seedling is otherwise normal; (4) slight infection by fungi, provided none of the essential seedling structures have been damaged; (5) normal seedling structures of *Beta* that have been discolored from toxic substances in the seed balls or other causes; or (6) at least one normal seedling from a seed ball, regardless of whether abnormal seedlings also emerge from the same fruit.

(c) Abnormal seedlings include those that have: (1) No root or a stubby primary root with poor secondary root development, usually associated with a shortened hypocotyl; (2) a malformed, shortened, twisted, watery, or stubby hypocotyl, usually associated with a stubby root but not necessarily so; (3) deep grainy lesions or cracks in the hypocotyl if they appear to interfere with the conducting tissues; (4) both cotyledons absent as in samples of "sheared" beets and occasional samples of spinach; (5) two large cotyledons, but a malformed, short hypocotyl, usually with a stubby root; (6) decayed cotyledons or hypocotyl, provided they are not the result of improper test conditions (if there is decay of beet seedlings in blotter tests the results from a properly conducted soil or sand test should be accepted as correct); or (7) various combinations of the abnormalities described in this paragraph.

201.56-2 Sunflower family (Compositae).—Kinds of seed: Artichoke, cardoon, chicory, dandelion, endive, lettuce, safflower, salsify, and sunflower.

By the end of the germination test, a perfectly normal seedling belonging to the sunflower family should have a well-developed root with root hairs, a long and well-developed hypocotyl, two leaf-like cotyledons, and a small but visible epicotyl.

(a) Lettuce: The interpretations of lettuce seedlings are made only at the end of the test period.

¹ These photographs may be purchased from the Office of Information, United States Department of Agriculture, Washington 25, D.C.

(1) Normal seedlings include those that have: (i) A well-developed, long, slender root with root hairs; (ii) a well-developed long hypocotyl with no deep lesions which might interfere with the conducting tissues; (iii) two green cotyledons with some blackened or reddish brown areas, provided the hypocotyl and roots have developed normally or approximately so; or (iv) slight infections by fungi, provided none of the essential seedling structures have been damaged.

(2) Abnormal seedlings include those that have: (i) No roots or very stubby or shortened roots, which are usually associated with a shortened hypocotyl; (ii) a shortened hypocotyl which is usually associated with stubby roots; (iii) a malformed hypocotyl, severely twisted or having grainy areas or cracks extending into the conducting tissues; (iv) cotyledons with large areas of blackish or reddish brown tissue, usually appearing along the midrib, associated with a short hypocotyl and root (the seedcoats are often attached to the cotyledons, adhering to the darkened areas and can be easily removed if lightly sprinkled with water); (v) cotyledons with a gray cast over their entire area, usually darker at the midrib section (hypocotyl and roots invariably shortened and seedcoats usually attached to the cotyledons); (vi) swollen, blackened cotyledons with only vestiges of hypocotyl and root, the seedcoats usually remaining attached to the cotyledons; (vii) decayed cotyledons; or (viii) various combinations of the abnormalities described in this subparagraph.

(b) Other kinds in the sunflower family: This group includes artichoke, cardoon, sunflower, safflower, salsify, dandelion, chicory, and endive.

(1) Normal seedlings include those that have: (i) A well-developed, long, slender primary root with root hairs; (ii) a stubby root if there are one or more strong secondary roots, provided the seedling is otherwise normal; (iii) a well-developed, long hypocotyl with no prominent breaks or deep lesions which might interfere with the conducting tissues; (iv) at least one uninjured cotyledon, provided the epicotyl is also present; or (v) slight infection of the roots or hypocotyl with fungi, provided none of the essential seedling structures have been damaged.

(2) Abnormal seedlings include those that have: (i) No root or a stubby root with weak secondary roots, usually associated with a shortened hypocotyl; (ii) a malformed hypocotyl, which may be curled, shortened, or thickened, usually associated with a stubby root; (iii) deep, unhealed cracks or grainy areas on the hypocotyl, extending into the conducting tissues; (iv) both cotyledons entirely broken off; (v) one cotyledon broken off, provided the epicotyl is also absent; (vi) two normal cotyledons with a short malformed hypocotyl, usually with a stubby root; (vii) decayed cotyledons, provided the infection is not caused by improper test condition; or (viii) various combinations of the abnormalities described in this subparagraph.

201.56-3 Mustard family (Cruciferae).—Kinds of seed: Broccoli, brussels sprouts, cabbage, Chinese cabbage, cauliflower, collards, garden cress, water cress, kale, Chinese kale, kohlrabi, mustard, pak-choi, radish, rape, rutabaga, and turnip.

By the end of the germination test, a perfectly normal cruciferous seedling should have a well-developed root, usually with root hairs, a long hypocotyl, two intact green leaflike cotyledons and a small but visible epicotyl or growing point.

(a) *Radish and Brassica.*—(1) Normal seedlings include those that have: (i) A well-developed, long, slender primary root with root hairs; (ii) a well-developed, long hypocotyl with no prominent breaks or deep lesions which might interfere with the conducting tissues; (iii) one or two cotyledons not decayed at the point of attachment to the hypocotyl, provided the epicotyl is also present; (iv) slight decay at the base of one cotyledon, provided the epicotyl is not infected; (v) less than 50 percent of the area of the cotyledons covered with spots or darkened areas; or (vi) slight infection of roots or hypocotyl with fungi, provided none of the essential seedling structures have been damaged.

(2) Abnormal seedlings include those that have: (i) No root or a stubby root, usually associated with a shortened hypocotyl; (ii) a malformed hypocotyl, which may be curled, shortened, or thickened and usually associated with a stubby root; (iii) deep, unhealed cracks or lesions (often grainy) on the hypocotyl, extending into the conducting tissues; (iv) decay at the point of attachment of both cotyledons to the hypocotyl which may or may not involve the terminal bud; (v) decay at the point of attachment of one cotyledon to the hypocotyl, provided the terminal bud is also decayed; (vi) 50 percent or more of the area of the cotyledons covered with spots or darkened areas; (vii) decayed roots or hypocotyl, provided the infection was not caused by improper test conditions; (viii) watery hypocotyl (usually associated with some other

abnormality of the seedlings) provided this condition is not caused by excessive moisture of the substratum; or (ix) various combinations of the abnormalities described in this subparagraph.

(b) *Garden cress and water cress*.—(1) Normal seedlings include those that have: (i) A well-developed, slender root with root hairs; (ii) a long, well-developed hypocotyl with no prominent breaks or deep lesions which might interfere with the conducting tissues; (iii) intact cotyledons; or (iv) slight infection with fungi, provided none of the essential seedling structures have been damaged.

(2) Abnormal seedlings include those that have: (i) No root, or a stubby root, usually associated with a shortened hypocotyl; (ii) a malformed hypocotyl, which may be curled, twisted, shortened, or thickened and frequently associated with a stubby root; (iii) deep, unhealed cracks or grainy lesions on the hypocotyl, extending into the conducting tissues; (iv) watery hypocotyls, usually associated with stubby roots or decayed cotyledons; (v) cotyledons entirely broken off; (vi) decayed cotyledons, provided the infection was not caused by improper test conditions; or (vii) various combinations of the abnormalities described in this subparagraph.

201.56-4 Cucurbit family (Cucurbitaceae).—(a) **Kinds of seed:** Citron, cucumber, muskmelon or cantaloup, pumpkin, squash, and watermelon.

(b) By the end of the germination test a perfectly normal seedling should have a well-developed primary root with several secondary roots, a long hypocotyl, two intact cotyledons, and an epicotyl or terminal growing bud.

(1) Normal seedlings include those that have: (i) A well-developed primary root with or without secondary roots; (ii) a stubby primary root with at least two strong and vigorous adventitious roots, provided the hypocotyl is not shortened very much; (iii) a long, well-developed hypocotyl; (iv) two intact cotyledons; or (v) slight infection by fungi, provided none of the essential seedling structures have been damaged.

(2) Abnormal seedlings include those that have: (i) No primary root, a stubby primary root only, or a stubby primary root with weak secondary roots which are usually associated with a short hypocotyl; (ii) a malformed hypocotyl which may be shortened or thickened; (iii) a thickened and shortened hypocotyl and roots owing to injury from chemical treatment, provided the injury is still apparent in a soil or sand check test; (iv) decayed cotyledons or other essential seedling structures, provided the decay was not the result of improper test conditions; or (v) various combinations described in this subparagraph.

201.56-5 Grass family (Gramineae).—**Kinds of seed:** Bentgrasses, bluegrasses, bluestems, bromes, cereals, fescues, millets, orchardgrass, redtop, ryegrass, sorghum, timothy, wheatgrass, and all other grasses listed in § 201.1 (h).

In the grass family a perfect seedling should have a well-developed primary root system, an intact cotyledon or scutellum, seed free from serious decay and long, well-developed green leaves within the coleoptile. One or more leaves may have broken through the coleoptile by the end of the test period.

(a) *Barley, oat, rye, and wheat*.—(1) Normal seedlings include those that have: (i) At least one primary or seminal root, but preferably two or three seminal roots, provided the shoot is well developed and the grain is not badly decayed; (ii) well-developed green leaves, not badly split, regardless of whether the coleoptiles are split; (iii) spiral twisting or bending of the shoot, provided it is green in color, has normal length, and is not frost damaged; or (iv) slight infection by fungi, provided none of the essential seedling structures have been damaged.

(2) Abnormal seedlings include those that have: (i) No primary root, (ii) only one or two short or spindly seminal roots which are usually accompanied by weakened shoots and decayed grains; (iii) no green leaves, but only the white sheath or coleoptile formed, which may or may not be grainy, spirally twisted, split, or shortened; (iv) a shortened shoot, extending no more than one-half the way up through the coleoptile; (v) a thin, spindly, or watery shoot usually accompanied by weak root development and decayed grains; (vi) badly shattered or longitudinally split leaves, with or without splitting of the coleoptile; (vii) thickened and shortened shoot (leaves and coleoptile) often the result of over-treatment of seed with chemicals; (viii) decayed shoots (usually weak and show decay near the point of attachment to the grain which has often decayed) provided the decay is not the result of improper test conditions; (ix) bad frost damage characterized by grainy coleoptiles and spirally twisted leaves and coleoptiles; (x) coleoptiles developed without the leaves (in soil tests, some of the longest of the spirally twisted seedlings will appear fairly

strong but most of them break off just above the attachment of the plumule and coleoptile to the grain; the shortest of the seedlings do not emerge in soil tests); or (xi) various combinations of the abnormalities described in this subparagraph.

(b) *Rice*.—(1) Normal seedlings include those that have: (i) One primary root, usually with numerous lateral roots (several permanent roots arising from the first node should be present if seedlings are not removed until the end of the test); (ii) well-developed green leaves, not badly split, regardless of whether the coleoptiles are split; or (iii) slight infection by fungi, provided none of the essential seedling structures have been damaged.

(2) Abnormal seedlings include those that have: (i) No roots; (ii) a spindly primary root with very little or no branching or secondary development; (iii) no green leaves, but only the white sheath or coleoptile; (iv) a spindly and sometimes watery shoot which is usually associated with decay of the rice grain; (v) short leaf, extending no more than one-half the distance up through the coleoptile; (vi) shattered or longitudinally split plumules with or without splitting of the coleoptile; (vii) decayed plumules (usually appear weak and show decay near the point of attachment to the grain) provided the decay is not the result of improper test conditions; or (viii) various combinations of the abnormalities described in this subparagraph.

(c) *Corn*.—(1) Normal seedlings include those that have: (i) One primary root, usually with secondary roots present; (ii) no primary root, but with at least two vigorous secondary roots, provided the grain is not badly decayed, and the shoot is well-developed; (iii) well-developed green leaves, not badly split, regardless of whether the coleoptiles are split; (iv) twisted and curled shoots bound by the tough seedcoat, provided the shoot is not decayed; or (v) slight infection by fungi, provided none of the essential seedling structures have been damaged.

(2) Abnormal seedlings include those that have: (i) No primary or secondary roots; (ii) no primary roots but small and weak secondary roots; (iii) no plumule, but only the white sheath or coleoptile; (iv) a shortened plumule, extending no more than one-half the way up through the coleoptile; (v) a thickened and shortened shoot, often the result of overtreatment of seed with chemicals; (vi) a spindly and pale shoot usually associated with moldy seeds; (vii) albino (entirely white) seedlings, which will not develop into plants because of lack of chlorophyll; (viii) shattered or longitudinally split leaves, with or without splitting of the coleoptile; (ix) decayed shoots of which the plumules usually appear weak and show decay near the point of attachment to the grain and the scutellum is usually rotten, provided the decay is not the result of improper test conditions; or (x) various combinations of the abnormalities described in this subparagraph.

(d) *Sorghum and Sudangrass*.—(1) Normal seedlings include those that have: (i) One primary root, usually with well-developed secondary roots and root hairs if left for final counts in soil tests; (ii) well-developed green leaves, not badly split, regardless of whether the coleoptiles are split; (iii) slight infection by fungi, provided none of the essential seedling structures have been damaged; or (iv) red coloration on the roots and on the coleoptile of the shoot, caused by natural pigments, provided the seedling is otherwise normal.

(2) Abnormal seedlings include those that have: (i) No roots; (ii) a weak, spindly, and usually shortened primary root, which is often associated with decay of the grain; (iii) no plumule, but only the white sheath or coleoptile; (iv) a shortened plumule, extending no more than one-half the way up through the coleoptile; (v) a spindly and pale plumule, usually associated with moldy seeds; (vi) shattered and longitudinally split plumules, with or without splitting of the coleoptile; (vii) decayed plumules, provided the decay is not the result of improper test conditions (the plumules usually appear weak and show decay near the point of attachment to the grain which is usually rotten); or (viii) various combinations of the abnormalities described in this subparagraph.

(e) *Grasses and millets*.—(1) Normal seedlings include those that have: (i) A well-developed primary root, usually with root hairs; (ii) well-developed green leaves, not badly split, regardless of whether the coleoptiles are split; (iii) slight infection by fungi, provided none of the essential seedling structures have been damaged; (iv) spirally coiled roots held within the tightly enveloping glumes as in certain samples of Bermuda-grass; or (v) poor root development resulting from injury caused by use of a potassium nitrate solution (if many roots are so affected, a retest should be made on top of soil in closed Petri dishes).

(2) Abnormal seedlings include those that have: (i) No. root; (ii) a weak, stubby, or spindly root, usually short and watery, associated with a decayed seed; (iii) no plumule, but only the white sheath or coleoptile which is often short and thick; (iv) a shortened plumule, extending only one-half the distance up through the coleoptile; (v) a spindly plumule, usually pale and watery; (vi) a shattered longitudinally split plumule with or without splitting of the coleoptile; (vii) decayed plumules, provided the decay is not the result of improper test conditions (the plumules usually appear weak and show decay near the point of attachment to the seed, which is usually rotten); or (viii) various combinations of the abnormalities described in this subparagraph.

201.56-6 Legume or pea family (Leguminosae).—Kinds of seed: Alfalfa, alyceclover, asparagusbean, beans (*Phaseolus* spp.), beggarweed, black medic, broadbean, bur-clovers, button-clover, chickpea, clovers (*Trifolium* spp.), cow-pea, crotalarias, crownvetch, guar, hairy indigo, kudzu, lentil, lespedezas, lupines, pea, peanut, rough pea, sainfoin, sesbania, sourclover, soybean, sweet-clover, trefoils, velvetbean, and vetches.

(a) *Beans: Adzuki, field, garden, lima, mung, and asparagusbean.*—Seedling interpretation for all these beans is similar as they all have the same type of development.

(1) Normal seedlings include those that have: (i) A terminal bud or epicotyl, and at least one primary leaf, even though one or both cotyledons may be present; (ii) a primary root or adventitious or secondary roots sufficient to anchor the seedling when grown in soil or sand, provided the hypocotyl is approximately of normal length; (iii) a fairly well-developed hypocotyl with no prominent breaks or deep lesions (healed breaks, sometimes referred to as knees, are to be considered as normal, provided the seedling is not spindly); (iv) spirally twisted and curled roots and hypocotyl held within the tough seedcoat, causing delayed development, but are otherwise normal; (v) slight infection caused by fungi or bacteria, provided the essential structures have not been seriously damaged and appear to be able to carry on their normal functions at the time of evaluation. (If a few seedlings with total or partial decay of the plumule are found, they may be counted as normal, provided the hypocotyl and root are well-developed. The plumules on such seedlings usually do not decay when grown under greenhouse conditions where the cotyledons open up naturally and are exposed to a dry environment and sunlight. However, if there are many seedlings with decayed plumules in a test, a retest should be made and such seedlings evaluated cautiously).

(2) Abnormal seedlings include those that have: (i) No primary leaves or terminal bud (baldheads); (ii) no primary leaves, but with a terminal bud (snakeheads or partial baldheads); (iii) no primary leaves, but terminal bud present and axillary buds in one or both of the cotyledons (partial baldheads); (iv) a malformed hypocotyl, which may be characterized by open splits, or one that appears curled, shortened, or thickened; (v) no primary root or well-developed set of adventitious or secondary roots; or (vi) various combinations of the abnormalities described in this subparagraph.

(b) *Broadbean, lentil, runner bean, velvetbean, chickpea, field pea, garden pea, roughpea, and vetches.*—In this group a perfectly normal seedling should have a well-formed root, with or without secondary or adventitious development, a strong epicotyl with fairly long stem, a well-developed epicotyl with the leaves and terminal bud intact, and attached cotyledons.

(1) Normal seedlings include those that have: (i) A primary root or a set of secondary or adventitious roots sufficient to anchor the seedling when grown in soil or sand, provided the stem is not badly shortened; (ii) a fairly well-developed stem with no prominent breaks or deep lesions which might interfere with the conducting tissues; (iii) a terminal bud with at least one first-leaf and an intact growing point; (iv) two shoots, provided the seedling appears vigorous and at least one of the shoots has a normal epicotyl and root; or (v) slight infection by fungi or bacteria, provided the essential seedling parts have not been seriously damaged and appear to be able to carry on their normal functions at the time of evaluation.

(2) Abnormal seedlings include those that have: (i) No primary root or well-developed secondary or adventitious roots; (ii) a malformed stem, which may be characterized by severe open splits, and curled, shortened, or thickened development; (iii) no epicotyl, or an epicotyl without the terminal bud; (iv) two shoots both of which appear weak and spindly, often partially broken away from the cotyledons; (v) decay caused by the spread of organisms from the cotyledons of the developing seedling; or (vi) various combinations of the abnormalities described in this subparagraph.

(c) *Cowpea, lupines, peanut, and soybean*.—A completely normal seedling of the above-mentioned kinds should have a well-formed root with or without secondary or adventitious roots, a strong and fairly long hypocotyl with two attached and open cotyledons, two well-developed primary leaves, and an intact terminal bud or epicotyl.

(1) Normal seedlings include those that have: (i) A primary root or a set of secondary or adventitious roots sufficient to anchor the seedling when grown in soil or sand, provided the hypocotyl is normal; (ii) a fairly well-developed hypocotyl with no prominent breaks or deep lesions which might interfere with the conducting tissues; (iii) a plumule with at least one leaf and an intact growing point; or (iv) slight infection by fungi or bacteria, provided the essential seedling parts have not been seriously damaged and appear to be able to carry on their normal functions at the time of evaluation.

(2) Abnormal seedlings include those that have: (i) No primary root or no well-developed secondary or adventitious roots; (ii) a malformed hypocotyl which may be curled, shortened, or thickened or have severe open splits; (iii) no epicotyl, or one without the growing point, with or without leaves; (iv) decayed epicotyl, provided the decay has spread from the rotted cotyledons of the developing seedling; or (v) various combinations of the abnormalities described in this subparagraph.

(d) *Alfalfa, alyceclover, beggarweed, black medic, burclovers, buttonclover, clovers, crotalarias, crownvetch, guar, hairy indigo, kudzu, lespedezas, sainfoin, sesbania, sourclover, sweetclovers, trefoils*.—By the end of the germination test a perfectly normal seedling should have a long, slender root, usually with root hairs, a long hypocotyl, two attached cotyledons which have opened, and an intact epicotyl or growing point.

(1) Normal seedlings include those that have: (i) A long, slender root, usually with root hairs; (ii) slightly stubby roots on blotter tests of sweetclovers, provided the seedling is otherwise normal; (iii) roots slightly stubby from being held back by the attached seedcoat, provided the seedling is otherwise normal; (iv) short splits on the roots, provided the split does not extend into the central conducting tissues of the hypocotyl, and provided further that root hairs are present and the seedling is normal in other respects; (v) a long well-developed hypocotyl which may have slight cracks or breaks, provided they do not extend into the conducting tissues; (vi) at least one cotyledon, provided the epicotyl is also present; or (vii) slight infection by fungi, provided none of the essential seedling structures have been damaged.

(2) Abnormal seedlings include those that have: (i) Stubby roots, usually associated with shortened hypocotyl; (ii) longitudinal, deep splits on the roots, extending into the conducting tissues of the hypocotyls; (iii) deep cracks or breaks in the hypocotyl which extend into the conducting tissues; (iv) both cotyledons broken off; (v) one cotyledon broken off if the epicotyl is also absent; (vi) rotted cotyledons, provided the decay did not spread to the seedling from an adjacent seed or was not the result of improper test conditions; (vii) a spindly, watery hypocotyl, provided it is not the result of excess moisture in the substrata (usually seedlings of this type have one or more abnormalities of the essential structures, such as broken cotyledons or deep slits in the hypocotyl); or (viii) various combinations of the abnormalities described in this subparagraph.

201.56-7 *Lily family (Liliaceae)*.—Kinds of seed: Asparagus, leek, onion, and Welsh onion.

(a) *Onion, Welsh onion, and leek*.—By the end of the test period a perfectly normal onion or leek seedling should have a long, slender root with a thickened area where it is joined to the base of the hypocotyl, a fairly long hypocotyl, and a long, green cotyledon with a definite loop or bend, often referred to as the "knee."

(1) Normal seedlings include those that have: (i) A well-developed, long, slender root, with or without root hairs; (ii) a fairly long hypocotyl; (iii) a long, green, leaflike cotyledon, with a well-developed bend or "knee" or (iv) slight infection by fungi, provided none of the essential seedling structures have been damaged.

(2) Abnormal seedlings include those that have: (i) A thickened area at the base of the hypocotyl with no root, or a stubby root; (ii) a very short hypocotyl, usually associated with a poorly developed root and cotyledon; (iii) a poorly developed leaflike cotyledon without a definite bend or "knee"; (iv) a spindly, watery hypocotyl, often associated with slowness in sprouting, and one or more other abnormalities; (v) a rotted cotyledon, provided the decay

is not the result of improper test conditions; or (vi) various combinations of the abnormalities described in this subparagraph.

(b) *Asparagus*.—By the end of the test period a normal asparagus seedling should have a long, slender root, a fairly long epicotyl, an intact terminal bud, and the seedling should not be broken away from the cotyledon.

(1) Normal seedlings include those that have: (i) A long, slender root; (ii) a long, well-developed epicotyl with terminal growing point; (iii) the cotyledon attached to the seedling; or (iv) slight infection by fungi, provided none of the essential seedling structures have been damaged.

(2) Abnormal seedlings include those that have: (i) No root, or a very stubby root with weak secondary root development; (ii) a malformed epicotyl, which may be thickened, shortened, or twisted; (iii) no terminal growing point or bud; (iv) cotyledon broken away from the seedling; (v) decayed epicotyl, provided the decay is not the result of improper test conditions; or (vi) various combinations of the abnormalities described in this subparagraph.

201.56-8 Flax family (Linaceae).—(a) Kind of seed: Flax.

(b) By the end of the germination test a normal flax seedling should have a well-developed primary root, a long hypocotyl, two intact cotyledons, and a small epicotyl.

(1) Normal seedlings include those that have: (i) A long, slender root, usually with root hairs; (ii) a short or stubby primary root, provided secondary root development is strong and the hypocotyl is of normal length or approximately so; (iii) a long, well-developed hypocotyl with no breaks or lesions extending into the conducting tissues; (iv) at least one attached cotyledon, provided the epicotyl is not injured; (v) variously broken or cracked cotyledons, provided the other seedling parts appear normal; or (vi) slight infection by fungi, provided none of the essential seedling structures have been damaged.

(2) Abnormal seedlings include those that have: (i) A stubby or no primary root, provided the secondary root development is weak, a condition usually associated with a shortened hypocotyl; (ii) a malformed hypocotyl, which may be twisted, thickened, or shortened; (iii) deep cracks or lesions on the hypocotyl, extending into the conducting tissues; (iv) both cotyledons broken off; (v) one cotyledon broken off if the epicotyl is also injured; (vi) decayed cotyledons or other essential seedling structures, provided the decay is not the result of improper test conditions; or (vii) various combinations of the abnormalities described in this subparagraph.

201.56-9 Mallow family (Malvaceae).—(a) Kinds of seed: Cotton and okra.

(b) By the end of the germination test a perfectly normal seedling should have a long, well-developed root with root hairs, a long hypocotyl, two attached green leaflike cotyledons, and a small epicotyl.

(1) Normal seedlings include those that have: (i) A well-developed, long, slender root, usually with root hairs; (ii) no primary root but strong secondary roots, provided the hypocotyl is of normal or approximately normal length; (iii) a long, well-developed hypocotyl with no breaks or deep grainy lesions which might interfere with the conducting tissues; (iv) at least one cotyledon and intact epicotyl; (v) slight infection by fungi, provided none of the essential seedling structures have been damaged; or (vi) a yellowish hypocotyl or roots of cotton which may appear diseased, provided the cotyledons are free of infection (the seedcoat must be peeled back on young seedlings to determine this condition of the cotyledons).

(2) Abnormal seedlings include those that have: (i) No root or very stubby roots, usually associated with a shortened hypocotyl; (ii) stubby roots and a thickened hypocotyl resulting from chemical treatment of seed, such as often occurs on delinted cottonseed; (iii) malformed hypocotyl, which may be curled, thickened, or shortened; (iv) deep cracks or grainy lesions on the hypocotyl which appear to interfere with the conducting tissues; (v) epicotyl absent, even though one or both cotyledons are attached; (vi) decayed cotyledons and hypocotyl, provided the decay did not spread from another seed or was not the result of improper test conditions; or (vii) various combinations of the abnormalities described in this subparagraph.

201.56-10 Spurge family (Euphorbiaceae).—Kind of seed: Castor bean. (a) Normal seedlings include those that have: (1) A primary root or a set of secondary or adventitious roots sufficient to anchor the seedling when grown in soil or sand, provided the hypocotyl is not badly shortened; (2) a fairly well-developed hypocotyl with no prominent breaks or stem lesions which might interfere with the conducting tissues; (3) an epicotyl with terminal

bud: or (4) slight infection by fungi or bacteria, provided the essential seedling parts have not been seriously damaged and appear to be able to carry on their normal functions at the time of evaluation.

(b) Abnormal seedlings include those that have: (1) No primary root or well-developed adventitious or secondary roots; (2) a malformed stem, which may be characterized by severe open splits, and curled, shortened or thickened hypocotyl; (3) no epicotyl, or an epicotyl without the terminal bud; (4) decay caused by microorganisms carried by the individual seed or seedling being evaluated; or (5) various combinations of the abnormalities described in this subparagraph.

201.56-11 Miscellaneous plant families.—Kinds of seed by families:

Benne family (Pedaliaceae)—Sesame.	Knotweed family (Polygonaceae)—
Carrot family (Umbelliferae)—Carrot, celery, celeriac, parsley, parsnip.	Buckwheat, sorrel, rhubarb.
Dichondra family (Dichondraceae)—Dichondra.	Nightshade family (Solanaceae)—Eggplant, pepper, tomato, husk tomato.
Geranium family (Geraniaceae)—Alyssum.	Rose family (Rosaceae)—Little burnet.
Hemp family (Cannabiaceae)—Hemp.	Valerian family (Valerianaceae)—Corn salad.

(a) In this group of plant families, normal seedlings include those that have: (1) A well-developed primary root, usually with root hairs; (2) a stubby root or no primary root, provided the secondary root development is strong and the hypocotyl is near normal length as is frequently encountered in tomato seedlings; (3) a long, well-formed hypocotyl, with no prominent breaks or lesions, extending into the conducting tissues; (4) at least one attached cotyledon, provided the epicotyl is intact and the seedling is otherwise normal (a tiny epicotyl may be observed in seedlings left in test for final evaluation); or (5) slight infection by fungi, provided none of the essential seedling structures have been damaged (infection is likely to occur in rhubarb in which case retests may be advisable).

(b) Abnormal seedlings include those that have: (1) A stubby root or no primary root, provided there is weak secondary root development; (2) a malformed hypocotyl, which may be twisted, thickened, or shortened; (3) deep cracks or lesions on the hypocotyl extending into the conducting tissues; (4) both cotyledons, or one cotyledon and epicotyl, broken off; (5) two enlarged cotyledons, but hypocotyl short and usually malformed; (6) decayed cotyledons or hypocotyl, provided they are not the result of improper test conditions; or (7) various combinations of the abnormalities described in this paragraph.

201.57 Hard seeds.—Seeds which remain hard at the end of the prescribed test because they have not absorbed water, due to an impermeable seed coat, are to be counted as "hard seed." If at the end of the germination period provided for legumes, okra, cotton and dichondra in these rules and regulations there are still present swollen seeds or seeds of these kinds which have just started to germinate, all seeds or seedlings except the above-stated shall be removed and the test continued for 5 additional days and the normal seedlings included in the percentage of germination.

201.57a Dormant seeds: firm ungerminated seeds.—Dormant seeds means seeds, other than hard seeds, which fail to germinate when provided the specific germination conditions for the kind of seed in question. Firm ungerminated seeds means seeds, other than hard seeds, which neither germinate nor decay during the prescribed test period and under the prescribed test conditions.

201.58 Substrata, temperature, duration of test, and certain other specific directions for testing for germination and hard seed.—Specific germination requirements are set forth in table 2 to which the following paragraphs (a) and (b) are applicable:

(a) *Definitions and explanations applicable to table 2*—(1) *Duration of tests.*—The following deviations are permitted from the specified duration of tests: Any test may be terminated prior to the number of days listed under "Final Count" if the germination of the sample has then been determined. The number of days stated for the first count is approximate and a deviation of 1 to 3 days is permitted. (Also, see subparagraph (5) of this paragraph and § 201.57.)

(2) *Light.*—When light is required the intensity for nondormant seed may be as low as 25 foot-candles. In the case of dormant seed of grasses such as occur in *Agrostis tenuis*, *Poa compressa*, and *Lolium multiflorum* the light intensity should approximate 100 foot-candles.

(3) *Moisture-on-dry-side*.—This term means that the moistened substratum should be pressed against a dry absorbent surface such as a dry paper towel or blotter to remove excess moisture. The moisture content thus obtained should be maintained throughout the germination test period.

(4) *Potassium nitrate* (KNO_3).—These terms mean a two-tenths (0.2) percent solution of potassium nitrate (KNO_3) shall be used in moistening the substratum. Such solution is prepared by dissolving 2 grams of KNO_3 in 1,000 ml. of distilled water. The grade of the potassium nitrate shall meet A. C. S. specifications.

(5) *Prechill*.—The term “prechill” means to place the seed on, or in, a moist substratum at a specified low temperature for a designated period of time. The prechilling period is not included in the duration of tests given in table 2, unless otherwise specified.

(6) *Predry*.—The term “predry” means to place the seed in a shallow layer at a temperature of 35° to 40° C. for a period of 5 to 7 days, with provisions for circulation of the air.

(7) *Substrata (Kinds)*.—The symbols used for substrata are:

B=	between blotters	(0.3-inch thick Kimpack or equivalent) covered with a single thickness of blotter
TB=	top of blotters	thickness into the paper wad-
T=	paper toweling, used either as folded towel tests or as roll towel tests in horizontal or vertical position	punched for the seed that are pressed for about one-half their thickness into the paper wad-
S=	sand or soil	ding
TS=	top of sand or soil	RB=
P=	covered Petri dishes: with two layers of blotters; with one layer of absorbent cotton; with five layers of paper toweling; with three thicknesses of filter paper; or with sand or soil	blotters with raised covers, prepared by folding up the edges of the blotter to form a good support for the upper fold which serves as a cover, preventing the top from making direct contact with the seeds.
C=	creped cellulose paper wadding	

(8) *Temperature*.—A single numeral indicates a constant temperature. Two numerals separated by a dash indicate an alternation of temperatures, the test to be held at the first temperature for approximately 16 hours and at the second temperature for approximately 8 hours per day. If tests are not subjected to alternating temperatures over weekends and on holidays they are to be held at the lower temperature during this time. In cases where two temperatures are indicated (separated by a semicolon) the first temperature shall be regarded as the regular method and the second as an alternate method.

(9) *Toxicity of substrata*.—If there is question as to whether a paper substratum is toxic to developing seedlings, check tests should be made on Whatman's No. 2 filter paper or its equivalent. Seeds of celery, celeriac, chicory, dandelion, endive, timothy, and Bermuda-grass are particularly sensitive to toxic substrata. If root injury is evident on a substratum moistened with potassium nitrate, retests should be made on a substratum moistened with water or on soil.

(b) *Special procedures and alternate methods for germination referred to in table 2*—(1) *Alyce clover* (*Alysicarpus vaginalis*); *Swollen seeds*.—At the conclusion of the 21-day test period carefully pierce the seedcoat with a sharp instrument and continue the test for 5 additional days.

Alternate method: The swollen seeds may be placed at 20° C. for 48 hours and then at 35° C. for 3 additional days.

(2) *Bahia grass* (*Paspalum notatum*); *removal of glumes*—(i) *Vars. Common and Argentine*.—Remove the glumes with the aid of a sharp scalpel. If the seed is fresh or dormant scratch the surface of the caryopsis lightly and use potassium nitrate.

(ii) *Var. Pensacola*.—The glumes shall not be removed for the germination test.

(3) *Beet, Swiss chard* (*Beta*); *preparation of seed for test*.—Before placing the seeds on the germination substratum they shall be soaked in water for 2 hours, using at least 250 ml. of water per 100 seeds, then washed in running water and the excess water should be blotted off. Samples producing darkened radicles should be retested in soil or by washing in running water for 3 hours and tested on “Kimpak,” keeping the seed covered with slightly moist blotters.

(c) Table 2; germination requirements for indicated kinds.

TABLE 2.—Germination requirements for indicated kinds

Name of seed	Substrata	Temperature	First count	Final count	Specific requirements and photo numbers	Additional directions
AGRICULTURAL SEED						
Alfalfa— <i>Medicago sativa</i>	B, S.....	°C. 20	Days 4	Days 17	Photos 2481, 2486; see par. (b) (11)---	Scratch caryopses; KNO ₃ . Prechill 5 days at 5° or 10° C. or predry.
Alfilaria— <i>Erodium cicutarium</i>	B.....	20-30	3	14	Clip seeds.....	
Alyceclover— <i>Alysicarpus vaginalis</i>	B.....	35	4	1 21	See par. (b) (1) for swollen seeds.....	
Bahiagrass— <i>Paspalum notatum</i> : Var. <i>Pensacola</i>	P, S.....	30-35	7	2 28	Light; see par. (b) (2).....	
All other vars.....	P.....	30-35	3	21	Light; remove glumes; see par. (b) (2).	
Barley— <i>Hordeum vulgare</i>	B, T, S.....	20; 15	4	7	---	
Bean:						
Adzuki— <i>Phaseolus angularis</i>	T, S.....	20-30	4	7 10	---	Prechill at 5° or 10° C. for 7 days; see par. (a) (2). Prechill at 5° or 10° C. for 7 days.
Field— <i>Phaseolus vulgaris</i>	T, S.....	20-30; 25	5	18	---	
Mung— <i>Phaseolus aureus</i>	T, S.....	20-30	3	17	---	
Beet, field— <i>Beta vulgaris</i>	B, S.....	20-30	3	14	Photos 19557, 19558; see par. (b) (3)---	
Beet, sugar— <i>Beta vulgaris</i>	B, S.....	20-30	3	14	do.....	
Beggarweed, Florida— <i>Desmodium tortuosum</i>	B.....	30	5	28	---	
Bentgrass:						
Colonial (including Astoria and Highland)— <i>Agrostis tenuis</i>	P.....	15-30; 10-30	7	28	Light; KNO ₃	
Creeping— <i>Agrostis palustris</i>	P.....	15-30; 10-30	7	28	do.....	
Velvet— <i>Agrostis canina</i>	P.....	20-30	7	21	do.....	
Bermuda-grass— <i>Cynodon dactylon</i>	P.....	20-35	7	21	Light; KNO ₃ ; photo 2518; see par. (a) (9).	
Bluegrass:						
Annual— <i>Poa annua</i>	P.....	20-30	7	21	Light.....	Prechill all samples at 5° C. for 7 days. Prechill at 10° C. for 5 days.
Bulbous— <i>Poa bulbosa</i>	P, S.....	10	10	35	KNO ₃ or soil.....	
Canada— <i>Poa compressa</i>	P.....	15-30; 10-30	10	28	Light; KNO ₃ ; see par. (a) (2).	
Kentucky (including var. <i>Merion</i>)— <i>Poa pratensis</i>	P.....	15-30; 10-30	10	28	Light; KNO ₃	
Nevada— <i>Poa nevadensis</i>	P.....	20-30	7	21	do.....	
Rough— <i>Poa trivialis</i>	P.....	20-30	7	21	Light.....	Prechill at 5° C. for 2 weeks. Do. Do. Do. Do.
Texas— <i>Poa arachnifera</i>	P.....	20-30	7	28	Light; KNO ₃	
Wood— <i>Poa nemoralis</i>	P.....	20-30	7	28	Light.....	
Bluestem:						
Big— <i>Andropogon gerardi</i>	P, TS.....	20-30	7	28	Light; KNO ₃	
Little— <i>Andropogon scoparius</i>	P, TS.....	20-30	7	28	do.....	
Sand— <i>Andropogon hallii</i>	P, TS.....	20-30	7	28	do.....	
Yellow— <i>Andropogon ischaemum</i>	P, TS.....	20-30	5	21	do.....	

See footnotes at end of table.

TABLE 2.—Germination requirements for indicated kinds—Continued

Name of seed	Substrata	Temperature	First count	Final count	Additional directions	
					Specific requirements and photo numbers	Fresh and dormant seed
AGRICULTURAL SEED—continued						
Brome:			Days	Days		
Field— <i>Bromus arvensis</i>	TB	20-30	6	14	Light	Prechill at 10° C. for 5 days. (Alternate method.)
(Alternate method)	TB	15-25	6	14	do	
Mountain— <i>Bromus marginatus</i>	P	20-30	6	14	do	
Smooth— <i>Bromus inermis</i>	P, B, TB	20-30	6	14	Light optional	Prechill at 5° or 10° C. for 7 days.
Broomcorn— <i>Sorghum vulgare</i> var. <i>technicum</i>	B, S	20-30	3	10		
Buckwheat— <i>Fagopyrum esculentum</i>	B, T	20-30	3	6		
Bufo-lograss— <i>Buchloe dactyloides</i>						
(Burs)	P, TB, TS	20-35	7	28	Light; KNO ₃	Prechill at 5° C. for 6 weeks; test 14 additional days.
(Caryopses)	P	20-35	5	14	Light; KNO ₃	
Bufo-lograss— <i>Pennisetum ciliare</i>	S	30	7	28	Light; press fascicles into well-packed soil and prechill at 5° C. for 7 days.	
Bur-clover, California— <i>Medicago hispida</i>	B, T	20	4	14	Remove seeds from bur; see par. (b) (11).	See par. (b) (4).
Bur-clover, spotted— <i>Medicago arabica</i>	B, T	20	4	14	do	
Burnet, little— <i>Sanguisorba minor</i>	B	15	5	14		15° C.
Button-clover— <i>Medicago orbicularis</i>	B	20	4	10	See par. (b) (11)	
Canarygrass— <i>Phalaris canariensis</i>	B	20-30	3	7		
Canarygrass, reed— <i>Phalaris arundinacea</i>	P	20-30	5	21	Light	KNO ₃ . Do.
Carpetgrass— <i>Axonopus affinis</i>	P	20-35	10	21	Light	
Castor bean— <i>Kicinus communis</i>	T, S	20-30	7	14	Remove caruncle if mold interferes with test.	
Chess, soft— <i>Bromus mollis</i>	P	20-30	7	14	Light	Prechill at 10° C. for 7 days.
Chickpea— <i>Cicer arietinum</i>	T, S	20-30	3	7		
Clover:						
Alsike— <i>Trifolium hybridum</i>	B, S	20	3	17	See par. (b) (11)	15° C.
Berscem— <i>Trifolium alexandrinum</i>	B, S	20	3	17	do	
Cluster— <i>Trifolium glomeratum</i>	B	20	4	10	do	Do.
Crimson— <i>Trifolium incarnatum</i>	B, S	20	4	17	See par. (b) (11); photos 2479, 2482.	Do.
Ladino— <i>Trifolium repens</i>	B, S	20	3	17	See par. (b) (11)	Do.
Lappa— <i>Trifolium lappaceum</i>	B	20	3	17	do	Do.
Large hop— <i>Trifolium procumbens</i> (<i>T. campestre</i>).	B	20	4	14	do	Do.
Persian— <i>Trifolium resupinatum</i>	B	20	3	17	do	Do
Red— <i>Trifolium pratense</i>	B, S	20	4	17	See par. (b) (11); photos 2483, 2484.	Do.
Rose— <i>Trifolium hirtum</i>	B	20	4	10	See par. (b) (11)	Do.
Small hop (Suckling)— <i>Trifolium dubium</i>	B	20	4	14	do	Do.
Strawberry— <i>Trifolium fragiferum</i>	B	20	3	17	do	Do.

Sub— <i>Trifolium subterraneum</i>	B.....	20	4	14	do.....	Do.
White— <i>Trifolium repens</i>	B, S.....	20	3	17	do.....	Do.
Corn:						
Field— <i>Zea Mays</i>	T, S.....	30-30; 25	4	7	Photos 2510, 2511, 2512, 2514.....	Test by alternate method; see par. (b) (5).
Pop— <i>Zea mays</i> var. <i>evarta</i>	T, S.....	20-30; 25	4	7		
Cotton— <i>Gossypium</i> spp.....	T, S.....	20-30	4	12	Photos 19553, 19554.....	
Cowpea— <i>Vigna sinensis</i>	T, S.....	20-30	5	18	Photos 1989, 1990, 2377.....	Prechill for 3 days at 5° or 10° C.
Crested dogtail— <i>Cynosurus cristatus</i>	P.....	20-30	10	21	Light.....	
Crotalaria:						
Lanec— <i>Crotalaria lanceolata</i>	B, S.....	20-30	4	110	Photos 2496, 2497.....	
Showy— <i>Crotalaria spectabilis</i>	B, S.....	20-30	4	110		
Slenderleaf— <i>Crotalaria intermedia</i>	B, S.....	20-30	4	110		
Striped— <i>Crotalaria mucronata</i>	B, S.....	20-30	4	110	Light; KNO ₃	
Sunn— <i>Crotalaria juncea</i>	B, S.....	20-30	4	110		
Crownvetch— <i>Coronilla varia</i>	B, S.....	20	7	114		
Dallisgrass— <i>Paspalum dilatatum</i>	P.....	20-35	7	21	do.....	Prechill at 5° C. for 4 to 8 weeks and test 28 additional days.
Diehondra— <i>Dichondra repens</i>	B.....	20-30	7	128		
Dropseed, sand— <i>Sporobolus cryptandrus</i>	P.....	15-35	5	42		
Emmer— <i>Triticum dicoccum</i>	B, T, S.....	20;15	4	7		Prechill at 5° C. for 5 days or predry.
Fescue:						
Chewings— <i>Festuca rubra</i> var. <i>commutata</i>	P.....	15-25	7	21	Light.....	
(Alternate method).....	P.....	20-30	7	28		
Hair— <i>Festuca capillata</i>	P.....	10-25	10	28		
Meadow— <i>Festuca elatior</i>	P.....	20-30	5	14	Light and KNO ₃ optional.....	
(Alternate method).....	P.....	15-25	5	14		
Red— <i>Festuca rubra</i>	P.....	15-25	7	21		
(Alternate method).....	P.....	20-30	7	28	do.....	
Sheep— <i>Festuca ovina</i>	P.....	15-25	7	21		
(Alternate method).....	P.....	20-30	7	28		
Tall— <i>Festuca arundinacea</i>	P.....	20-30	5	14	Light and KNO ₃ optional.....	
(Alternate method).....	P.....	15-25	5	14		
Flax— <i>Linum usitatissimum</i>	B, T, S.....	20-30	3	7		
Grass:						KNO ₃ .
Blue— <i>Bouteloua gracilis</i>	P, TB.....	20-30	7	28	Light.....	
Side-oats— <i>Bouteloua curtipendula</i>	P.....	15-30	7	28		
Guar— <i>Cyamopsis tetragonoloba</i>	T, S.....	30	5	114		
Guineagrass— <i>Panicum maximum</i>	P.....	20-30	10	28	do.....	Do.
Hardinggrass— <i>Phalaris tuberosa</i> var. <i>stenoptera</i>	P.....	10-30	7	28		
Hemp— <i>Cannabis sativa</i>	B, T.....	20-30	3	7		
Indiangrass, yellow— <i>Sorghastrum nutans</i>	P, TS.....	20-30	7	28	Light; KNO ₃	Prechill at 5° C. for 2 weeks.
Indigo, hairy— <i>Indigofera hirsuta</i>	B.....	20-30	5	114		
Japanese lawngress— <i>Zoysia japonica</i>	P.....	35-20	10	28		
Johnsongrass— <i>Sorghum halepense</i>	P.....	20-35	7	35	Light; KNO ₃	KNO ₃ .
Kudzu— <i>Pueraria thunbergiana</i>	T.....	20-30	5	114		
Lentil— <i>Lens culinaris</i>	B.....	20	5	110		
Lespedeza:						
Korean— <i>Lespedeza stipulacea</i>	B, S.....	20-35	5	114	Photo 2494.....	
Sericea or Chinese— <i>Lespedeza cuneata</i> (L. sericea).....	B, S.....	20-35	7	128		

See footnotes at end of table.

TABLE 2.—Germination requirements for indicated kinds—Continued

Name of seed	Substrata	Temperature	First count	Final count	Additional directions	
					Specific requirements and photo numbers	Fresh and dormant seed
AGRICULTURAL SEED—continued						
Lespedeza—Continued						
Siberian— <i>Lespedeza hedsaroides</i> -----	B, S-----	°C. 20-35	Days 7	Days 1 21	-----	
Striate (Common, Kobe, Tenn. 76)— <i>Lespedeza striata</i> .-----	B, S-----	20-35	7	1 14	-----	
Lovegrass, sand— <i>Eragrostis trichodes</i> -----	P-----	20-35	5	14	Light, KNO ₃ -----	Prechill at 5° or 10° C. for 6 weeks
Lovegrass, weeping— <i>Eragrostis curvula</i> -----	P-----	20-35	5	14	Light-----	KNO ₃ .
Lupine:						
Blue— <i>Lupinus angustifolius</i> -----	T, S-----	20	4	1 10	Photos 14535-14542-----	
White— <i>Lupinus albus</i> -----	T-----	20	3	1 10	-----	
Yellow— <i>Lupinus luteus</i> -----	T-----	20	7	1 10	-----	
Manilagrass— <i>Zoysia matrella</i> -----	P-----	35-20	10	28	Light; KNO ₃ -----	
Meadow foxtail— <i>Alopecurus pratensis</i> -----	P-----	20-30	7	14	Light-----	
Medick, black— <i>Medicago lupulina</i> -----	B, S-----	20	4	1 7	See par. (b) (11).-----	
Millet:						
Browntop— <i>Panicum ramosum</i> -----	B-----	20-30	4	14	Light; KNO ₃ -----	Predry at 35° or 40° C. for 7 days; or test at 30° C.
Foxtail—Such as Common, White Wonder, German, Hungarian, Siberian, or Golden— <i>Setaria italica</i> .-----	B-----	20-30	4	10	-----	
Japanese— <i>Echinochloa crusgalli</i> var. <i>frumentacea</i> .-----	B-----	20-30	4	10	-----	
Pearl— <i>Pennisetum glaucum</i> -----	B-----	20-30	3	7	-----	
Proso— <i>Panicum miliaceum</i> -----	B-----	20-30	3	7	-----	
Molassesgrass— <i>Melinis minutiflora</i> -----	P-----	20-30	7	21	Light-----	
Mustard:						
Black— <i>Brassica nigra</i> -----	P-----	20-30	3	7	do-----	KNO ₃ and prechill at 10° C. for 3 days.
White— <i>Brassica hirta</i> -----	P-----	20-30	3	5	do-----	
Napiergrass— <i>Pennisetum purpureum</i> -----	B-----	20-30	3	10	-----	
Oat— <i>Avena</i> spp-----	B, T, S-----	20; 15	5	10	Photos 2407, 2408, 2524-2527, 19545, 19546.-----	Prechill at 5° or 10° C. for 5 days and test for 7 days or predry and test for 10 days.
Oatgrass, tall— <i>Arrhenatherum elatius</i> -----	P-----	20-30	6	14	Light-----	
Orchardgrass— <i>Dactylis glomerata</i> -----	P, TS-----	20-30	7	21	Light; germination more rapid on soil.-----	
Panicgrass, blue— <i>Panicum antidotale</i> -----	P, TS-----	20-30	7	28	Light-----	
Peanut— <i>Arachis hypogaea</i> -----	T, S-----	20-30	5	10	Remove shells; photos 19541, 19542-----	
Pea, field— <i>Pisum sativum</i> var. <i>arvense</i> -----	T, S-----	20	3	1 8	Photos 2503, 2506, 14543-14547-----	Test at 30° C.
Rape:						
Annual— <i>Brassica napus</i> var. <i>annua</i> -----	B-----	20-30	3	7	-----	
Bird— <i>Brassica campestris</i> -----	P-----	20-30	3	10	Light-----	KNO ₃ .

Turnip— <i>Brassica campestris</i> vars.	B	20-30	3	7		
Winter— <i>Brassica napus</i> var. <i>biennis</i>	B	20-30	3	7		
Redtop— <i>Agrostis alba</i>	P, TB	20-30	5	10		Light
Rescuegrass— <i>Friomis catharticus</i>	P, S	10-30	7	28		Light; see par. (b) (8) for alternate method.
Rhodesgrass— <i>Chloris gayana</i>	P	20-30	6	14		Light; KNO ₃
Rice— <i>Oryza sativa</i>	T, S	20-30	5	14		Photos 19549, 19550; see par. (b) (9) for alternate method.
Ricegrass, Indian— <i>Oryzopsis hymenoides</i>	P	15	7	42		
Roughpea— <i>Lathyrus hirsutus</i>	T	20	7	14		
Rye— <i>Secale cereale</i>	B, T, S	20; 15	4	7		Photos 2403, 2406, 2528-2531
Ryegrass:						
Italian— <i>Lolium multiflorum</i>	P, TB	20-30; 10-30	5	14		Light; KNO ₃ ; see par. (b) (10) for fluorescence test.
Perennial— <i>Lolium perenne</i>	P, TB	20-30; 10-30	5	14		do.
Safflower— <i>Carthamus tinctorius</i>	T, S	20	4	8		
Sainfoin— <i>Onobrychis viciifolia</i>	B, T	20-30	4	14		
Sesame— <i>Sesamum indicum</i>	P	20-30	3	6		
Sesbania— <i>Sesbania exaltata</i>	T	20-30	5	17		
Smilo— <i>Oryzopsis miliacea</i>	P	20-30	7	42		Light
Sorghum:						
Grain and Sweet— <i>Sorghum vulgare</i>	B, T, S	20-30	4	10		Photos 2413-2416
Sorghum alnum— <i>Sorghum alnum</i>	T, S	20-35	5	21		
Sorghum ³	B, T, S	15-35	5	21		Photos 2413-2416
Sourclover— <i>Melilotus indica</i>	B	29	3	14		See paragraph (b) (11)
Soybean— <i>Glycine max</i>	T, S	20-30; 25	5	18		Photos 2371, 2372, 2378
Spelt— <i>Triticum spelta</i>	B, T, S	20; 15	4	7		
Sudanagrass— <i>Sorghum vulgare</i> var. <i>sudanense</i>	B, T, S	20-30	4	10		Photos 2449-2452
Sunflower (Cult.)— <i>Helianthus annuus</i>	T, B	20-30	3	7		
Sweetclover:						
White— <i>Melilotus alba</i>	B, S	20	4	17		Photos 2374, 2375, 2376, 2381; see par. (b) (11).
Yellow— <i>Melilotus officinalis</i>	B, S	20	4	17		do.
Sweet vernalgrass— <i>Anthoxanthum odoratum</i>	P	20-30	6	14		Light
Switchgrass— <i>Panicum virgatum</i>	P, TS	15-30	7	28		Light; KNO ₃
Timothy— <i>Phleum pratense</i>	P, TB	20-30	5	10		Light; photo 2399; see par. (a) (9)
Trefoil:						
Big— <i>Lotus uliginosus</i> (<i>L. major</i>)	B	20	5	110		
Birdsfoot— <i>Lotus corniculatus</i>	B	20	5	110		Photos 19531, 19532
Vasoygrass— <i>Paspalum urvillei</i>	P	20-35	7	21		Light
Veldtgrass— <i>Ehrharta calycina</i>	P	10-30	7	23		do.
Velvetbean— <i>Stizobium leeringianum</i>	T, S, O	20-30	3	14		Photos 19539, 19540
Velvetgrass— <i>Holcus lanatus</i>	P	20-30	6	14		Light
Vetch:						
Common— <i>Vicia sativa</i>	T	20	5	110		
Hairy— <i>Vicia villosa</i>	T	20	5	114		
Hungarian— <i>Vicia panonica</i>	T	20	5	110		
Monantha— <i>Vicia articulata</i> (<i>V. monantha</i>)	T	20	5	110		

See footnotes at end of table.

TABLE 2.—Germination requirements for indicated kinds—Continued

Name of seed	Substrata	Temperature	First count	Final count	Additional directions	
					Specific requirements and photo numbers	Fresh and dormant seed
AGRICULTURAL SEED—continued						
Vetch—Continued						
Narrowleaf— <i>Vicia angustifolia</i>	T.....	20	Days 5	Days 14	-----	Prechill at 10° C. for 5 days and test at 15° C.
Purple— <i>Vicia atropurpurea</i>	T.....	20	5	10	-----	
Woolypod— <i>Vicia dasycarpa</i>	T.....	20	5	14	-----	
Wheat:						
Common— <i>Triticum aestivum</i>	B, T, S.....	20; 15	4	7	Photos 2507, 2522.....	Prechill at 5° or 10° C. for 5 days, or predry.
Club— <i>Triticum compactum</i>	B, T, S.....	20; 15	4	7	do.....	Do.
Durum— <i>Triticum durum</i>	B, T, S.....	20; 15	4	10	do.....	Do.
Polish— <i>Triticum polonicum</i>	B, T, S.....	20; 15	4	7	do.....	Do.
Poulard— <i>Triticum turgidum</i>	B, T, S.....	20; 15	4	7	do.....	Do.
Wheatgrass:						
Fairway crested— <i>Agropyron cristatum</i>	P, TB.....	20-30	5	14	Light optional.....	KNO ₃ and prechill at 5° or 10° C. for 7 days.
(Alternate method)						
Standard crested— <i>Agropyron desertorum</i>	P, TB.....	15-25	5	14	do.....	Do.
(Alternate method)	P, TB.....	20-30	5	14	do.....	
Intermediate— <i>Agropyron intermedium</i>	P.....	15-25	5	14	do.....	
Pubescent— <i>Agropyron trichophorum</i>	P.....	20-30	5	28	Light.....	
Slender— <i>Agropyron trachycaulum</i>	P, TB.....	20-30	5	28	do.....	
Tall— <i>Agropyron elongatum</i>	P.....	20-30	5	14	do.....	
Western— <i>Agropyron smithii</i>	P, B.....	20-30	5	21	do.....	
Wild-rye:						
Canada— <i>Elymus canadensis</i>	P.....	15-30	7	28	Light optional.....	KNO ₃ or soil.
Russian— <i>Elymus junceus</i>	P.....	20-30	5	21	Light.....	Prechill at 5° C. for 2 weeks.
VEGETABLE SEED						
Artichoke— <i>Cynara scolymus</i>	T.....	20-30	7	21	Photos 19533, 19534.....	
Asparagus— <i>Asparagus officinalis</i>	T, S.....	20-30	7	21	-----	
Asparagusbean— <i>Vigna sesquipedalis</i>	T, S.....	20-30	5	18	-----	
Beans:						
Garden— <i>Phaseolus vulgaris</i>	T, S.....	20-30; 25	5	18	Photos 1834, 1835, 1846, 1854, 1855.....	
Lima— <i>Phaseolus lunatus</i> var. <i>macrocarpus</i>	T, C, S.....	20-30	5	19	Photos 2380, 2400, 2401.....	
Runner— <i>Phaseolus coccineus</i>	T, S.....	20-30	5	19	-----	
Beet— <i>Beta vulgaris</i>	B, S.....	20-30	3	14	See par. (b) (3); photos 19557, 19558.....	Prechill at 10° C. for 3 days.
Broadbean— <i>Vicia faba</i>	S, C.....	20	4	14	See par. (b) (11).....	Prechill at 5° or 10° C. for 3 days
Broccoli— <i>Brassica oleracea</i> var. <i>botrytis</i>	B, P.....	20-30	3	10	-----	KNO ₃ and light.

Brussels sprouts— <i>Brassica oleracea</i> var. <i>gemmifera</i> ----	B, P-----	20-30	3	10	-----	Do.
Cabbage— <i>Brassica oleracea</i> var. <i>capitata</i> -----	B, P-----	20-30	3	10	Photos 19551, 19552-----	Do.
Cabbage, Chinese— <i>Brassica pekinensis</i> -----	B-----	20-30	3	7	-----	
Cardoon— <i>Cynara cardunculus</i> -----	T-----	20-30	7	21	Photos 19547, 19548-----	
Carrot— <i>Daucus carota</i> -----	B-----	20-30	6	21	Photo 19561-----	
Cauliflower— <i>Brassica oleracea</i> var. <i>botrytis</i> -----	B, P-----	20-30	3	10	-----	Prechill at 5° or 10° C. for 3 days KNO ₃ and light.
Celeriac— <i>Apium graveolens</i> var. <i>rapaceum</i> -----	P, TB-----	10-20; 20	10	21	Light at 20° C. constant; see par. (a) (9).-----	KNO ₃ and prechill at 10° C. for 3 days.
Celery— <i>Apium graveolens</i> var. <i>dulce</i> -----	P, TB-----	10-20; 20	10	21	-----	
Chard Swiss— <i>Beta vulgaris</i> var. <i>cicla</i> -----	B, S-----	20-30	3	14	See par. (b) (3)-----	
Chicory— <i>Cichorium intybus</i> -----	P, TS-----	20-30	5	14	Light; KNO ₃ or soil; photo 2504; see par. (a) (9).-----	
Citron— <i>Citrus vulgaris</i> -----	T-----	20-30	7	14	Soak seeds 6 hours-----	Test at 30° C.
Collards— <i>Brassica oleracea</i> var. <i>acephala</i> -----	B, P-----	20-30	3	10	-----	Prechill at 5° or 10° C. for 3 days; KNO ₃ and light.
Corn, sweet— <i>Zea mays</i> -----	T, S-----	20-30; 25	4	7	Photos 2510-2512, 2514-----	Test at 10° or 15° C.
Corn salad (Fetticus)— <i>Valerianella locusta</i> var <i>olitoria</i> .-----	B-----	20	7	23	-----	
Cowpea— <i>Vigna sinensis</i> -----	T, S-----	20-30	5	18	Photos 1989, 1990, 2377-----	
Cress:-----						
Garden— <i>Lepidium sativum</i> -----	B, P-----	20	4	10	Light-----	Test at 15° C. and light.
Water— <i>Rorippa nasturtium-aquaticum</i> -----	P-----	20-30	4	14	Keep substratum on dry side; see par. (a) (3); photos 19535, 19536.	
Cucumber— <i>Cucumis sativus</i> -----	B, T, S-----	20-30	3	7	Light; see par. (a) (9)-----	
Dandelion— <i>Taraxacum officinale</i> -----	P, TB-----	20-30	7	21	-----	Light; KNO ₃ .
Eggplant— <i>Solanum melongena</i> var. <i>esculentum</i> -----	P, TB, RB-----	20-30	7	14	-----	See pars. (a) (9) and (b) (6).
Endive— <i>Cichorium endivia</i> -----	P, TS-----	20-30	5	14	Light; KNO ₃ or soil-----	Prechill at 5° or 10° C. for 3 days; KNO ₃ and light.
Kale— <i>Brassica oleracea</i> var. <i>acephala</i> -----	B, P-----	20-30	3	10	-----	Light; KNO ₃ ; prechill at 5° or 10° C. for 3 days.
Kale, Chinese— <i>Brassica oleracea</i> var. <i>alboglabra</i> -----	P, B-----	20-30	3	10	-----	Prechill at 5° or 10° C. for 3 days; KNO ₃ and light.
Kohlrabi— <i>Brassica oleracea</i> var. <i>gongylodes</i> -----	B, P-----	20-30	3	10	-----	
Leek— <i>Allium porrum</i> -----	B-----	20	6	14	-----	
Lettuce— <i>Lactuca sativa</i> -----	P-----	20	none	7	Light for at least ½ hour [par. (b) (7)]; photos 2417, 2418, 19559, 19560.	
Muskmelon (cantaloup)— <i>Cucumis melo</i> -----	B, T, S-----	20-30	4	10	Keep substratum on dry side [par. (a) (3)].-----	Prechill at 10° C. for 3 days or test at 15° C.
Mustard— <i>Brassica juncea</i> -----	P-----	20-30	3	7	Light-----	Prechill at 10° C. for 7 days and test for 5 additional days; KNO ₃ .
Mustard, spinach— <i>Brassica perviridis</i> -----	B-----	20-30	3	7	-----	
Okra— <i>Hibiscus esculentus</i> -----	T-----	20-30	4	14	Photos 19543, 19544-----	
Onion— <i>Allium cepa</i> -----	B-----	20	6	10	Photos 1962, 2253, 2254, 2328, 2330, 2340, 2341, 2469.-----	
(Alternate method.-----	S-----	20	6	12)	-----	
Onion, Welsh— <i>Allium fistulosum</i> -----	B-----	20	6	10	-----	
Pak-choi— <i>Brassica chinensis</i> -----	B-----	20-30	3	7	-----	
Parsley— <i>Petroselinum hortense</i> (<i>P. crispum</i>)-----	B, TS-----	20-30	11	23	-----	
Parsnip— <i>Pastinaca sativa</i> -----	B, TS-----	20-30	6	23	-----	

See footnotes at end of table.

TABLE 2.—Germination requirements for indicated kinds—Continued

Name of steel	Substrata	Temperature	First count	Final count	Additional directions	
					Specific requirements and photo numbers	Fresh and dormant seed
VEGETABLE SEED—continued						
Pea— <i>Pisum sativum</i> -----	T, S-----	20	Days 5	Days 18	Photos 2492, 2498-2500-----	Light and KNO ₃ .
Pepper— <i>Capiscum</i> spp-----	P, TB, RB-----	20-30	6	14	Keep substratum on dry side [par.	
Pumpkin— <i>Cucurbita pepo</i> -----	T, S-----	20-30	4	7	(a) (3)].	
Radish— <i>Raphanus sativus</i> -----	B-----	20	4	6	Photos 2554, 19555, 19556-----	Prechill at 10° C. for 3 days. Test at 15° C.
Rhubarb— <i>Rheum raphonticum</i> -----	TB, TS-----	20-30	7	21	Light-----	
Rutabaga— <i>Brassica napus</i> var. <i>napobrassica</i> -----	B-----	20-30	3	14	-----	
Salsify— <i>Tragopogon porrifolius</i> -----	T-----	20	5	10	Light-----	Prechill at 10° C. for 3 days. Test at 15° C.
Sorrel— <i>Rumex acetosa</i> -----	P, TB, TS-----	20-30	3	14	Photos 2371, 2372, 2378-----	
Soybean— <i>Glycine max</i> -----	T, S-----	20-30; 25	5	18	Keep substratum on dry side [par.	
Spinach— <i>Spinacia oleracea</i> -----	TB-----	15; 10	7	21	(a) (3)].	Light; KNO ₃ . Test at 30° C.
Spinach, New Zealand— <i>Tetragonia expansa</i> -----	TS-----	10-30	5	28	do-----	
(Alternate method-----	B-----	15	5	21	Remove pulp from "seeds").	
Squash— <i>Cucurbita moschata</i> and <i>C. maxima</i> -----	T, S-----	20-30	4	7	Keep substratum on dry side [par.	Light; KNO ₃ . Test at 30° C.
Tomato— <i>Lycopersicon esculentum</i> -----	B, P, RB-----	20-30	5	14	(a) (3)]; photos 19537, 19538.	
Tomato, husk— <i>Physalis pubescens</i> -----	P, TB-----	20-30	7	28	Photo 2513-----	
Turnip— <i>Brassica rapa</i> -----	B-----	20-30	3	7	Light; KN O ₃ -----	Test at 30° C.
Watermelon— <i>Citrullus vulgaris</i> -----	T, S-----	20-30; 15	4	14	Keep substratum on dry side [par.	
					(a) (3)].	

¹ Hard seeds often present.

² Firm ungerminated seeds frequently present.

³ Rhizomatous derivatives of a Johnsongrass x sorghum cross or a Johnsongrass x Sudangrass cross.

(4) *Buffelgrass* (*Pennisetum ciliare*); *alternate method for dormant seed*.—The caryopses shall be removed from the fascicles and placed on blotters moistened with a 0.2 percent potassium nitrate solution, in Petri dishes. The seeds from a fascicle should be arranged so they will not be confused with seeds from other fascicles during the test. The seeds are then prechilled at 5° C. for 7 days and tested at 30° C. in light for 21 additional days. Firm ungerminated seeds remaining at the conclusion of the test should be scratched lightly and left in test for 7 additional days.

(5) *Cotton* (*Gossypium spp.*); *dormant seeds*.—Samples of cottonseed which do not respond to the usual method should be placed in a closed container with water and shaken until the lint is thoroughly wet. The excess moisture should then be blotted off.

(6) *Endive* (*Cichorium endivia*); *dormant seeds*.—Add about $\frac{1}{8}$ inch of tap water at the beginning of the test and remove excess water after 24 hours.

(7) *Lettuce* (*Lactuca sativa*); *light exposure*.—All samples should be given at least $\frac{1}{2}$ hour of light after being placed on the moist substratum. Additional light during the test period is desirable for dormant seeds and facilitates seedling interpretation for samples of low vigor.

(8) *Rescue grass* (*Bromus catharticus*); *dormant seeds*.—Wash for 48 hours in running water, or soak for 48 hours, changing the water and rinsing each morning and night.

(9) *Rice* (*Oryza sativa*); *flood test*.—The seed is planted in moist sand. On the seventh day of the test add water to a depth of $\frac{1}{4}$ inch above the sand level and leave for the remainder of the test. Only a final count is made.

(10) *Ryegrass* (*Lolium*); *fluorescence test*.—The germination test for fluorescence of ryegrass shall be conducted in light (not to exceed 100 foot-candles) with white filter paper as a substratum. The test shall be conducted in a manner that will prevent the contact of roots of different seedlings.

(11) *Trifolium*, *Medicago*, *Melilotus*, and *Vicia faba*; *temperature requirements*.—The temperature for *Trifolium* spp., *Medicago* spp., *Melilotus* spp., and *Vicia faba* should never exceed 20° C. and a temperature of 17° to 18° is desirable.

EXAMINATIONS IN THE ADMINISTRATION OF THE ACT

201.58a Indistinguishable seed.—When the identification of the kind, variety, or type of seed is not possible by seed characteristics, identification may be based upon the seedling, growing plant, or mature plant characteristics according to such authentic information as is available.

(a) *Ryegrass*.—In determining the proportions of perennial and Italian ryegrass, 400 seeds shall be grown on filter paper and the number of fluorescent seedlings determined under ultraviolet light at the end of the germination period. The percentages of pure ryegrass seed, normal fluorescent seedlings, and normal nonfluorescent seedlings shall be determined and the results shall be subjected to the following formula to calculate the proportion of the two kinds of ryegrass:

$$\text{Percent perennial ryegrass} = \frac{1,0526 \times \text{percent nonfluorescence} \times \text{percent pure ryegrass}}{\text{Percent germination}}$$

(b) *Sweetclover*.—In determining the percentage of yellow blossom biennial sweetclover in a mixture of yellow and white blossom biennial sweetclover, at least 400 seeds shall be examined to determine the percentage of mottled seed. The percentage of mottled seed shall be multiplied by four and this product multiplied by the percentage of sweetclover in the sample. The product shall be construed as representing the percentage of yellow blossom sweetclover.

201.58b Origin.—The presence of incidental weed seeds, foreign matter, or any other existing circumstances shall be considered in determining the origin of seed.

TOLERANCES

201.59 Application.—Tolerances shall be recognized between the percentages or rates of occurrence found by analysis, test, or examination in the administration of the act and percentages or rates of occurrence required or stated as required by the act. Tolerances for purity percentages and germination percentages provided for in §§ 201.60 and 201.63 shall be determined from the mean of (a) the results being compared, or (b) the result found by test and the figures shown on a label, or (c) the result found by test and a standard. All other tolerances, including tolerances for pure-live seed, tolerances for pure

seed based on 400- to 1000-seed tests, and tolerances for field and greenhouse tests for determination of kind, variety, or type shall be determined from the results or results found in the administration of the act.

201.60 Purity percentages.—In the determination of the tolerance for the percentage of the distinguishable kind, type or variety (pure seed), weed seeds, other crop seeds, and inert matter, the sample shall be first considered as made up of two parts: (a) The percentage of the component (pure seed, weed seed, crop seed or inert matter as the case may be) being considered, and (b) the difference between that percentage and 100. The number represented by (a) is then multiplied by the number represented by (b) and the product is divided by 100. The resulting number is then multiplied by 0.2 ($\frac{2}{10}$) and the resulting product added to 0.2 or 0.6 as indicated in the following formulae:

$$\text{Pure seed tolerance} = 0.6 + \left(0.2 \times \frac{a \times b}{100} \right)$$

$$\text{Weed seeds, other crop seeds, and inert matter tolerance} = 0.2 + \left(0.2 \times \frac{a \times b}{100} \right)$$

An additional tolerance shall be allowed for the following kinds of seeds (a) when any one kind constitutes the principal component of the sample, (b) in mixtures containing these kinds, singly or combined, in excess of 50 percent of the whole, and (c) in mixed and unmixed seeds wherein the chaffy seed plus the empty florets and/or spikelets exceed 50 percent of the sample:

<i>Agrostis</i> spp.	Panicgrass, blue.
<i>Andropogon</i> spp.	<i>Poa</i> spp.
Bermuda-grass.	Rhodesgrass.
<i>Bouteloua</i> spp.	Ricegrass, Indian.
Bromegrass.	Sweet vernalgrass.
Buffalograss.	Switchgrass.
Buffelgrass.	Vaseygrass.
Carpetgrass.	Veldtgrass.
Dallisgrass.	Velvetgrass.
<i>Festuca</i> spp.	Wheatgrass, crested.
Guineagrass.	Wheatgrass, hairy intermediate.
Indiangrass, yellow.	Wheatgrass, intermediate.
Meadow foxtail.	Wheatgrass, tall.
Molassesgrass.	Wheatgrass, western.
Oatgrass, tall.	Wild-rye, Canada.
Orchardgrass.	

201.61 Pure seed percentages based on 400- to 1000-seed tests.—Tolerances for pure seed percentages based on 400- to 1000-seed separations and fluorescence tests shall be: (a) Those set forth in the following table plus (b) one-half the regular pure seed tolerances determined in accordance with section 201.60. The sum of these two tolerances shall be applied to the result or results obtained in the administration of the act.

[Tolerance]

Number of seeds used	400	800	1,000	Number of seeds used	400	800	1,000
Result of test percent:				Result of test percent— Continued			
100.....				78.....	5.5	4.8	4.7
99.....	1.0	0.9	0.9	77.....	5.6	4.9	4.8
98.....	1.6	1.4	1.4	76.....	5.7	5.0	4.8
97.....	2.0	1.8	1.8	75.....	5.8	5.1	4.9
96.....	2.3	2.2	2.1	74.....	5.8	5.1	5.0
95.....	2.6	2.4	2.4	73.....	5.9	5.2	5.1
94.....	2.9	2.7	2.6	72.....	6.0	5.3	5.1
93.....	3.2	2.9	2.8	71.....	6.1	5.3	5.2
92.....	3.4	3.1	3.0	70.....	6.2	5.4	5.2
91.....	3.6	3.3	3.2	69.....	6.2	5.5	5.3
90.....	3.8	3.4	3.3	68.....	6.3	5.5	5.3
89.....	4.0	3.6	3.4	67.....	6.3	5.6	5.4
88.....	4.1	3.7	3.6	66.....	6.4	5.6	5.4
87.....	4.3	3.9	3.8	65.....	6.5	5.7	5.4
86.....	4.5	3.9	3.9	64.....	6.5	5.7	5.5
85.....	4.7	4.1	4.0	63.....	6.5	5.7	5.6
84.....	4.8	4.2	4.1	62.....	6.6	5.8	5.6
83.....	4.9	4.3	4.2	61.....	6.6	5.8	5.6
82.....	5.0	4.4	4.3	60.....	6.7	5.8	5.6
81.....	5.2	4.5	4.4	59.....	6.7	5.9	5.7
80.....	5.3	4.7	4.5	58.....	6.8	5.9	5.7
79.....	5.4	4.7	4.6	57.....	6.8	5.9	5.7

[Tolerance--Continued]

Number of seeds used	400	800	1,000	Number of seeds used	400	800	1,000
Result of test percent-- Continued				Result of test percent-- Continued			
56-----	6.8	5.9	5.7	27-----	6.4	5.4	5.2
55-----	6.8	5.9	5.8	26-----	6.3	5.4	5.2
54-----	6.9	6.0	5.8	25-----	6.2	5.3	5.1
53-----	6.9	6.0	5.8	24-----	6.2	5.2	5.0
52-----	6.9	6.0	5.8	23-----	6.1	5.2	4.9
51-----	6.9	6.0	5.8	22-----	6.0	5.1	4.9
50-----	6.9	6.0	5.8	21-----	5.9	5.0	4.8
49-----	6.9	6.0	5.8	20-----	5.8	4.9	4.8
48-----	6.9	6.0	5.8	19-----	5.7	4.9	4.7
47-----	6.9	6.0	5.8	18-----	5.6	4.8	4.6
46-----	6.9	6.0	5.8	17-----	5.5	4.7	4.4
45-----	6.9	6.0	5.8	16-----	5.4	4.6	4.4
44-----	6.9	6.0	5.8	15-----	5.3	4.5	4.3
43-----	6.9	6.0	5.8	14-----	5.2	4.3	4.2
42-----	6.9	6.0	5.8	13-----	5.0	4.2	4.0
41-----	6.9	5.9	5.7	12-----	4.9	4.1	3.9
40-----	6.9	5.9	5.7	11-----	4.7	3.9	3.8
39-----	6.8	5.9	5.7	10-----	4.6	3.8	3.6
38-----	6.8	5.9	5.7	9-----	4.4	3.6	3.4
37-----	6.8	5.9	5.6	8-----	4.2	3.5	3.3
36-----	6.8	5.8	5.6	7-----	4.0	3.3	3.1
35-----	6.7	5.8	5.6	6-----	3.7	3.1	2.9
34-----	6.7	5.8	5.6	5-----	3.5	2.9	2.7
33-----	6.7	5.7	5.5	4-----	3.2	2.6	2.4
32-----	6.6	5.7	5.4	3-----	2.8	2.3	2.2
31-----	6.6	5.6	5.4	2-----	2.4	1.9	1.8
30-----	6.5	5.6	5.4	1-----	1.8	1.4	1.4
29-----	6.5	5.6	5.3	0-----	1.0	0.5	0.4
28-----	6.4	5.5	5.3				

201.62 Field and greenhouse tests for determination of kind, variety, or type.—The following table of tolerances shall be used for field and greenhouse tests for determination of kind and variety:

[Tolerance]

Percentage purity found by test ¹	Number of plants—									
	50-74	75-99	100-149	150-199	200-249	250-299	300-349	350-399	400-799	800 or more
	Tolerance in percent									
95-100-----	10.0	9.5	8.5	8.0	7.5	7.0	6.5	6.0	5.5	5.0
90-94-----	10.5	10.0	9.0	8.5	8.0	7.5	7.0	6.5	6.0	5.5
85-89-----	11.0	10.5	9.5	9.0	8.5	8.0	7.5	7.0	6.5	6.0
80-84-----	11.5	11.0	10.0	9.5	9.0	8.5	8.0	7.5	7.0	6.5
75-79-----	12.0	11.5	10.5	10.0	9.5	9.0	8.5	8.0	7.5	7.0
70-74-----	12.5	12.0	11.0	10.5	10.0	9.5	9.0	8.5	8.0	7.5
65-69-----	13.0	12.5	11.5	11.0	10.5	10.0	9.5	9.0	8.5	8.0
60-64-----	13.5	13.0	12.0	11.5	11.0	10.5	10.0	9.5	9.0	8.5
55-59-----	14.0	13.5	12.5	12.0	11.5	11.0	10.5	10.0	9.5	9.0
50-54-----	14.5	14.0	13.0	12.5	12.0	11.5	11.0	10.5	10.0	9.5

¹ The tolerance for any value below 50 percent is the tolerance on the difference between 100 percent and the figure for which the tolerance is being determined. Thus, the tolerance on 45 percent for 400 plants would be: $100 - 45 = 55$; tolerance equals 9.5 percent.

201.63 Germination.—The following tolerances are applicable to the percentage of germination and also to the sum of the germination plus the hard seed when 400 or more seeds are tested.

Mean (See 201.59):

	<i>Tolerance</i>
96 or over -----	5
90 or over but less than 96 -----	6
80 or over but less than 90 -----	7
70 or over but less than 80 -----	8
60 or over but less than 70 -----	9
Less than 60 -----	10

When only 200 seeds of a component in a mixture are tested 2 percent shall be added to the above germination tolerances.

201.64 Pure live seed.—The tolerance for pure live seed shall be determined by applying the respective tolerances to the germination plus the hard seed and the pure seed.

201.65 Noxious-weed seeds in interstate commerce.—The following tolerances for rates of occurrence of noxious-weed seeds shall be recognized and shall be applied to the number of noxious-weed seeds found by analysis in the quantity of seeds specified for noxious-weed seed determinations in section 201.46 and section 201.52. Representations showing the rate of occurrence indicated in column 2 and 4 will be considered within the tolerance if no more than the accompanying number in columns 1 and 3 are found by analysis in the administration of the act. For rates of occurrence higher than those shown in the table and in case of additional or more extensive analyses, a tolerance based on a degree of certainty of 5 percent ($P=0.05$) will be recognized.

Number found by analysis	The following are within the tolerance	Number found by analysis	The following are within the tolerance
1-----	0	16	9
2-----	0	17	10
3-----	1	18	11
4-----	1	19	11
5-----	2	20	12
6-----	2	21	13
7-----	3	22	14
8-----	3	23	15
9-----	4	24	16
10-----	5	25	17
11-----	5	26	17
12-----	6	27	18
13-----	7	28	19
14-----	8	29	20
15-----	9	30	21

201.66 Noxious-weed seeds in imported seed.—The tolerance applicable to the rate of occurrence of noxious-weed seeds in imported seeds shall be six-tenths of the permissible number of seeds.

IMPORTED SEED

201.101 Exemptions.—For the purposes of section 302(c) (2) of the act, seeds of the following kinds are found to be imported in a substantial proportion for other than seeding purposes and are exempted from the import provisions (title III) of the act when imported for other than seeding purposes: *Provided*, That they are accompanied by declarations when and as required under section 201.222:

Barley.	Mustard, white.
Bean, adzuki.	Oat.
Bean, field.	Parsley.
Bean, horse or broad.	Pea, Austrian winter.
Bean, lima.	Pea, field.
Bean, mung.	Peanut.
Buckwheat, common.	Pepper.
Canarygrass.	Proso.
Castorbean.	Pumpkin.
Celery.	Rape, annual.
Chickpea.	Rape, bird.
Corn, field.	Rape, turnip.
Cowpea.	Rape, winter.
Flax.	Rice.
Guar.	Rye.
Hemp.	Safflower.
Lentil.	Sesame.
Lettuce.	Sorghum.
Lupine.	Soybeans.
Millet, foxtail, (German, Hungarian, or Golden.)	Sunflower.
Mustard.	Vetch.
Mustard, black.	Watermelon.
	Wheat.

201.102 Pure live seed.—For the purposes of section 304(c) of the act, the following percentages for the kinds stated will be construed to meet the import requirements of the act as to pure live seed:

	<i>Percent</i>		<i>Percent</i>
Alfilaria -----	50	Guineagrass -----	10
Artichoke -----	65	Indiangrass, yellow -----	50
Bahiagrass -----	50	Japanese lawnglass -----	35
Bluegrass, Poa spp -----	65	Leek -----	65
Bluestem, big -----	25	Lovegrass, sand -----	50
Bluestem, little -----	25	Manilagrass -----	35
Bluestem, sand -----	25	Molassesgrass -----	25
Bluestem, yellow -----	25	Okra -----	60
Beets -----	70	Panicgrass, blue -----	50
Buffalograss (burs) -----	35	Parsley -----	65
Buffelgrass -----	50	Parsnip -----	65
Cardoon -----	65	Pepper -----	65
Carrots -----	55	Rhodesgrass -----	35
Celeriac -----	60	Rhubarb -----	65
Celery -----	60	Sorrel -----	65
Chicory -----	70	Spinach, New Zealand -----	50
Cress, water -----	50	Switchgrass -----	35
Dallisgrass -----	35	Tomato, husk -----	60
Dandelion -----	65	Vaseygrass -----	35
Dropseed, sand -----	65	Veldtgrass -----	35
Eggplant -----	65	Wild-rye, Canada -----	50
Gramma, blue -----	35	Wild-rye, Russian -----	60
Gramma, side oats -----	10		

201.103 Unadapted alfalfa and red clover.—Alfalfa seed and red clover seed of foreign origin other than the Dominion of Canada have been determined to be unadapted for general agricultural use in the United States.

201.104 Staining of imported seed.—(a) 10 percent of the seed in each container of the seed of alfalfa or red clover grown in any foreign country other than the countries of South America and the Dominion of Canada shall be stained red;

(b) 10 percent of the seed in each container of the seed of alfalfa or red clover grown in any of the countries of South America shall be stained orange-red;

(c) 1 percent of the seed in each container of the seed of alfalfa or red clover grown in the Dominion of Canada shall be stained violet;

(d) 10 percent of the seed in each container of the seed of alfalfa or red clover shall be stained red;

(1) If the origin of alfalfa or red clover is unestablished;

(2) If the origin of alfalfa or red clover is such as to require different colors; and

(3) If the alfalfa or red clover of foreign origin has been commingled with the seed of the same kind grown in the United States.

201.105 Method of staining.—The stain shall be in the form of a solution of such concentration as to stain the seeds distinctly with the colors prescribed. The designated portion of the seed to be stained shall be completely and distinctly stained the prescribed color and blended with the unstained seed in accordance with instructions that may be issued from time to time by the Agricultural Marketing Service.

201.106 Supervision of staining.—Seed required to be stained and found not to have been stained prior to arrival in the United States shall not be permitted entry until it has been stained under the supervision of an employee or authorized agent of the United States Department of Agriculture. The staining in such case shall be at the expense of the owner or consignee who shall reimburse the Government for all expenses incurred in connection with such supervision, including travel, per diem or subsistence, and salaries of the officers or employees of the United States. Salary shall be reimbursed at the rate of \$4.50 per hour in connection with supervision during normal working hours of the officer or employee and \$5.80 per hour in connection with supervision outside the normal working hours of the officer or employee.

201.107 Weed seeds.—(a) Seeds or bulblets of all plants belonging to the following plant families, except those listed as agricultural or vegetable seeds,

or recognized as seeds of ornamentals, shall be considered weed seeds when occurring in importations subject to the act.

Aizoaceae—Carpetweed.	Lilaceae—Lily.
Amaranthaceae—Amaranth or pigweed.	Lobeliaceae—Lobelia.
Anacardiaceae—Sumac.	Lythraceae—Loosestrife.
Apocynaceae—Dogbane.	Malvaceae—Mallow.
Asclepiadaceae—Milkweed.	Nyctaginaceae—Four o'clock.
Boraginaceae—Borage.	Onagraceae—Evening-primrose.
Campanulaceae—Bluebell.	Oxalidaceae—Wood sorrel.
Capparidaceae—Caper.	Papaveraceae—Poppy.
Caryophyllaceae—Pink.	Phytolaccaceae—Pokeweed.
Chenopodiaceae—Goosefoot.	Piperaceae—Pepper.
Commelinaceae—Spiderwort.	Plantaginaceae—Plantain.
Compositae—Composite or daisy.	Polemoniaceae—Phlox.
Convolvulaceae—Morning-glory.	Polygonaceae—Buckwheat or smart-weed.
Crassulaceae—Orpine.	Portulacaceae—Purslane.
Cruciferae—Mustard.	Primulaceae—Primrose.
Cucurbitaceae—Cucurbit.	Ranunculaceae—Buttercup.
Cyperaceae—Sedge.	Resedaceae—Mignonette.
Dipsacaceae—Teasel.	Rosaceae—Rose.
Euphorbiaceae—Spurge.	Rubiaceae—Madder.
Geraniaceae—Geranium.	Scrophulariaceae—Figwort.
Gramineae—Grass.	Solanaceae—Night shade.
Hydrophyllaceae—Waterleaf.	Umbelliferae—Parsley.
Hypericaceae—St.-John's-wort.	Urticaceae—Nettle.
Illecebraceae—Knotweed.	Valerianaceae—Corns salad.
Iridaceae—Iris.	Verbenaceae—Verbena.
Juncaceae—Rush.	Zygophyllaceae—Caltrop.
Labiatae—Mint.	
Leguminosae—Legume.	

(b) The following agricultural and vegetable seeds are considered weed seeds when occurring in an importation of other agricultural or vegetable seeds unless they are declared in the entry papers for importation as agricultural or vegetable seeds:

Alfilaria— <i>Erodium cicutarium</i> (L.) L'Her.	Grass, velvet— <i>Holcus lanatus</i> L.
Beggarweed— <i>Desmodium tortuosum</i> (Ser.) D C	Mustard— <i>Brassica juncea</i> (L.) Goss.
Bluegrass, annual— <i>Poa annua</i> L.	Mustard, black— <i>Brassica nigra</i> Koch.
Brome, field— <i>Bromus arvensis</i> L.	Rape, annual— <i>Brassica napus</i> var. <i>annua</i> Koch.
Burnet, little— <i>Sanguisorba minor</i> Scop.	Rape, bird— <i>Brassica campestris</i> L.
Chess, soft— <i>Bromus mollis</i> L.	Rape, turnip— <i>Brassica campestris</i> vars. L.
Chicory— <i>Cichorium intybus</i> L.	Sesbania— <i>Sesbania exaltata</i> (Raf.) Torr.
Crownvetch— <i>Coronilla varia</i> L.	Sorghum alnum— <i>Sorghum alnum</i> Parodi.
Dandelion— <i>Taraxacum officinale</i> Weber.	Sorrel— <i>Rumex acetosa</i> L.
Dichondra— <i>Dichondra repens</i> Forst.	
Grass, Bermuda— <i>Cynodon dactylon</i> (L.) Pers.	

201.108 Noxious-weed seeds.—Seeds of the following plants shall be considered noxious-weed seeds when in imported seed:

<i>Lepidium draba</i> L., <i>Lepidium repens</i> (Schrenk) Boiss., <i>Hymenophyllum pubescens</i> C. A. Mey.—Whitetop.	<i>Sorghum halepense</i> (L.) Pers.—Johnson grass.
<i>Cirsium arvense</i> L.—Canada thistle.	<i>Convolvulus arvensis</i> L.—Bindweed.
<i>Cuscuta</i> spp.—Dodder.	<i>Centaurea picris</i> Pall.—Russian knapweed.
<i>Agropyron repens</i> (L.) Beauv.—Quackgrass.	<i>Sonchus arvensis</i> L.—Perennial sow-thistle.
	<i>Euphorbia esula</i> L.—Leafy spurge.

201.109 Mixtures not considered adulterations.—For the purposes of section 303 of the act the importation of mixtures in any combination of seed of suckling clover (*Trifolium dubium*), white clover (*Trifolium repens*), or cluster clover (*Trifolium glomeratum*) shall not be construed to be adulterated.

RULES OF PRACTICE

201.151 Institution of proceedings.—Any person having information of any violation of the act or of any of the regulations promulgated thereunder may file with the Deputy Administrator for Marketing Services, Agricultural Marketing Service, an application requesting the Secretary to institute such proceedings as may be authorized under the act. Such application shall be in writing, signed by or on behalf of the applicant, and shall contain a short and simple statement of the facts constituting the alleged violation and the name and address of the applicant and the party complained of. If, after investigation of the matters complained of in the application or after investigation made on his own motion, the Secretary has reason to believe that any person has violated or is violating any of the provisions of the act or the regulations made and promulgated thereunder, he may institute such proceeding as may be authorized by the act.

201.152 Status of applicant.—The person filing an application shall not be a party to any proceeding which may be instituted under the act, unless he be permitted by the Secretary or by the examiner to intervene therein. The Deputy Administrator for Marketing Services, Agricultural Marketing Service, shall not be required to divulge the name of the applicant and such person will have no legal status in the proceeding which may be instituted, except where allowed to intervene or as such person may be called as a witness. At any time after the institution of the proceeding, and before it has been submitted to the Secretary for final consideration, the Secretary or the examiner may, upon petition in writing and upon good cause shown, permit any person to intervene.

201.153 Docket number.—Each proceeding instituted under the act shall be assigned a docket or file number and thereafter the proceeding shall be referred to by such number.

201.154 Cease and desist proceedings.—(a) *Complaint and notice of hearing.*—If, upon investigation, made either on his own motion or upon application, the Secretary shall have reason to believe that any person has violated or is violating any of the provisions of the act or any of the regulations promulgated thereunder, he may cause a complaint in writing to be served upon such person, as the respondent. The complaint shall state the charges and shall require the respondent to attend and testify at a hearing at a time and place designated in the complaint, the designated time being at least 30 days after date of the service of the complaint. At any time prior to the close of the hearing, the complaint may be amended: but, in case of an amendment adding new provisions, the hearing shall, on the request of the respondent, be adjourned for a period not exceeding 15 days.

(b) *Answer.*—In case of a desire to contest the proceeding, the respondent shall within 20 days from the service of the complaint, file with the hearing clerk an answer to the complaint, in triplicate, signed by the respondent or his attorney. Such answer shall contain a concise statement of the facts which constitute the ground of defense. The respondent shall specifically admit or explain each of the facts alleged in the complaint unless respondent is without knowledge, in which case, respondent shall so state. Failure of the respondent to file an answer within the time above provided, and failure to appear at the time and place fixed for hearing, shall be deemed to authorize the Secretary, without further notice to respondent, to proceed in the regular course on the charges set forth in the complaint.

If the respondent desires to waive hearing on the allegations of fact set forth in the complaint and not to contest the facts, the answer may consist of a statement that respondent admits all the material allegations of fact charged in the complaint to be true. Respondent by such answer shall be deemed to have waived a hearing on the allegations of fact set forth in said complaint and to have authorized the Secretary, without further evidence, or other intervening procedure, to find such facts to be true, and, if in the judgment of the Secretary such admitted facts constitute a violation of law as charged in the complaint, to make and serve upon the said respondent findings as to the facts and an order to cease and desist from continuing such violations. Upon application in writing made contemporaneously with the filing of such answer, the respondent, in the discretion of the Secretary, may be heard on brief, in oral argument, or both, solely on the question as to whether the facts so admitted constitute the violation or violations of law charged in the complaint.

(c) *Conduct of hearing.*—The Secretary shall designate an employee of the Department of Agriculture to act as examiner to conduct the hearing, and such examiner shall have and may exercise all authority granted under section 413 of the act. In the conduct of the hearing, the examiner may rule upon any motion filed, or may reserve the matter for the subsequent ruling of the Secretary. He may rule upon the admissibility of evidence, but he shall admit all relevant and material evidence. The respondent or respondents may appear in person or by counsel and the Department shall be represented by an attorney designated by the General Counsel of the Department. The persons who appear as counsel at the hearing must conform to the standards of ethical conduct required of practitioners before the courts of the United States.

The burden of proof shall be upon the Secretary, as the moving party in the proceeding, and the evidence offered by the Department shall be first presented.

The testimony of the witnesses at the hearing shall be upon oath or affirmation administered by the examiner. Any witness may, in the discretion of the examiner, be examined separately and apart from all other witnesses except those who may be parties to the proceeding. The right of cross-examination shall obtain.

If a party objects to the admission of any evidence, or to the rejection of any evidence, or to the limitation of the scope of any examination or cross-examination, he shall state briefly the grounds of such objection, and the transcript shall not include argument or debate thereon except as ordered by the examiner. Such objections shall be made before the examiner in order to be subsequently relied upon in the proceeding. Ruling by the examiner on such objections shall be a part of the transcript.

A true copy of every written entry in the records of the Department, made by an officer or employee thereof in the course of his official duty, and relevant to the issues involved in the hearing, shall be admissible as prima facie evidence of the facts stated therein, without the production of such officer or employee.

The deposition of any witness, taken after reasonable notice to the opposite party or parties and at a time and place and before a person designated for the purpose by the Secretary, or by the examiner, shall be admitted, if the evidence is otherwise admissible.

When practicable to do so, a copy of each exhibit shall be furnished to the opposing party or parties either before or at the time of its introduction.

Judicial notice, on request, will be taken of such matters as are noticed by the courts of the United States.

(d) *Proposed findings of facts, conclusions, and order.*—Within 10 days (unless a longer period of time shall be permitted by the examiner) after the filing of the transcript with the hearing clerk, as provided in paragraph (e) below, any party (including the Department) may file with the hearing clerk proposed findings of fact, conclusions, and order, based solely on the evidence at the hearing, and briefs in support thereof.

(e) *Filing the transcript of evidence.*—The examiner shall, as soon as practicable after the close of a hearing, notify the hearing clerk of its close and of the time for filing proposed findings of fact, conclusions, and order, and furnish the hearing clerk with such other information as may be necessary. As soon as practicable after the close of the hearing, the examiner shall transmit to the hearing clerk an original and two copies of the transcript of the testimony and the original and all copies of exhibits introduced in evidence at the hearing. He shall attach to the original transcript of the evidence a certificate stating that the transcript is a true transcript of the testimony offered or received at the hearing, except in such particulars as he shall specify, and that the exhibits transmitted are all the exhibits introduced at the hearing, with such exceptions as he shall specify. A copy of such certificate shall be attached to each of the two copies of the transcript of evidence. In accordance with such certificate, the hearing clerk shall note upon the original and each copy of the transcript each correction detailed therein by adding or crossing out at the appropriate place any words necessary to make the text conform to the correct meaning.

(f) *Copies of the transcript of the testimony, etc.*—Any party to the proceeding desiring a copy of the transcript of the testimony or any written exhibit, or proposed findings of fact, or brief, shall be entitled to the same upon application to the hearing clerk and upon payment of fees therefor, as provided by regulation 1532 of the General Regulations, United States Department of Agriculture.

(g) *Examiner's report.*—That examiner, within a reasonable time after the termination of the period allowed for the filing of proposed findings of fact and

briefs in support thereof, shall prepare, upon the basis of the evidence received at the hearing, a report containing his tentative findings of fact, conclusions, and order, a copy of which shall be served by the hearing clerk upon each of the parties, including the Department.

(h) *Exceptions*.—Within 20 days after service of the examiner's report (unless the time is extended by the examiner), any party who wishes to take exception to any matter set out in such report shall transmit such exceptions in writing to the hearing clerk, referring to the relevant pages of the transcript, and suggesting a corrected finding of fact. Within the same period of time, each party shall transmit in writing to the hearing clerk a brief statement concerning each of the objections taken to the action of the presiding officer at the hearing, as set out in subsection (c) above, upon which he wishes to rely, referring, where relevant, to the pages of the transcript of evidence. A party, if he files exceptions, shall state in writing whether he desires to make an oral argument thereon before the Secretary.

(i) *Transmittal of record*.—The examiner, immediately following the termination of the period allowed for the filing of exceptions, shall transmit to the Secretary the record of the proceedings. Such record shall include: The pleading; the transcript of the evidence taken at the hearing; such proposed findings of fact, conclusions, and order, and briefs in support thereof, as may have been filed in connection with the hearing; the examiner's report; and the exceptions filed, if any.

(j) *Oral argument*.—In the event that an oral argument before the Secretary has been duly requested, a date for such argument shall be fixed by the Secretary or by the Under Secretary or the Assistant Secretary, if designated by the Secretary to act in his stead.

(k) *Issuance of final order*.—The Secretary, within a reasonable time after the receipt of the record from the examiner, as provided above, or, in case oral argument was had, within a reasonable time thereafter, will, upon the basis of the record and after due consideration of the same by him, make a report in writing of his findings as to the facts, and he may issue and cause to be served on each of the parties to the proceeding his final order in the proceeding. If oral argument is heard in any proceeding by the Under Secretary or the Assistant Secretary instead of the Secretary, the final order in the proceedings shall be issued by the person who heard the argument and considered the record in connection therewith.

(l) *Rehearing*.—An application for rehearing, reargument, reconsideration, or modification of a final order must be made by petition to the Secretary filed in triplicate with the hearing clerk. The petition must state specifically the grounds relied upon. A copy of any such application filed by a respondent shall be transmitted by the hearing clerk to each of the other parties to the proceeding. The Secretary may, after giving reasonable notice and after allowing a reasonable opportunity to be heard to all parties, amend or set aside his report or order, in whole or in part, provided, however, that the Secretary may take no action to amend or set aside the said report or order after the transcript of record has been filed in a "circuit court of appeals" in accordance with section 410 of the act.

In the event that a rehearing is granted by the Secretary, or a hearing is ordered upon a petition for the modification of a final order, the applicable rules of practice, as set out herein, shall be followed.

(m) *Service—Filing—Docketing*.—All pleadings, proposed findings, reports, exceptions, briefs, or other documents or papers required or authorized by these rules or by the act to be served on any party to a proceeding under this section shall be served by the hearing clerk or by anyone also duly authorized by the Secretary. Said service, if otherwise required, may be dispensed with when the person to be served has made and filed with the hearing clerk a written waiver of such service, which said waiver shall be signed by the person to be charged therewith or by some person thereunto lawfully authorized, and it shall be duly acknowledged before a person authorized by law to administer oaths. The service shall be made either (1) by a delivering a copy of the document or paper to the person to be served, or to a member of the partnership to be served, or to the president, secretary, or other executive officer or any director of the corporation to be served; or (2) by leaving a true copy of the document or paper at the principal office or place of business of such person, partnership, or corporation; or (3) by registering and mailing a true copy of the document or paper, addressed to such person, partnership, or corporation at his or its last known principal office or place of business. Proof of service hereunder

shall be made by the affidavit of the person who actually made the service, provided that, if the service be made by registered mail, as outlined in (3) above, proof of service shall be made by the return post-office receipt. The affidavit and post-office receipt contemplated hereby shall be filed with the hearing clerk, and the fact of filing thereof shall be noted on the docket of the proceeding.

All pleadings, proposed findings, reports, exceptions, briefs, affidavits showing service, and other papers or documents required or authorized by these rules or by this act to be filed with the Secretary or with the Deputy Administrator for Marketing Services, Agricultural Marketing Service, in any proceedings within the coverage of this section of the rules of practice shall be filed with the hearing clerk, Office of the General Counsel, United States Department of Agriculture, Washington, D.C.

The hearing clerk shall maintain a docket of and shall assign a number to each proceeding instituted under this section, and, thereafter, the proceeding shall be referred to by such number.

201.155 Proceedings prior to reporting for criminal prosecution.—The Deputy Administrator for Marketing Services, Agricultural Marketing Service, shall, before any violation of this act is reported by the Secretary to any United States attorney for institution of a criminal proceeding, notify the person against whom such proceeding is contemplated that action is contemplated, inform him regarding the facts involved, and afford him an opportunity to present his views, either orally or in writing, with regard to such contemplated proceeding.

Notice shall be served upon such person in the manner outlined in section 201.154 (*m*) above.

If the person desires to explain the transaction or otherwise to present his views, he shall file with the Deputy Administrator for Marketing Services, Agricultural Marketing Service, within 20 days after the service of the notice, an answer, in duplicate, signed by him or by his attorney, or shall request, within the 20 days, an opportunity to express his views orally. The request shall be embodied in a writing signed by the person or by his attorney or agent. Such opportunity to present his views orally shall be afforded at a time and place to be designated by the Deputy Administrator for Marketing Services, Agricultural Marketing Service, and it shall be given within a time not to exceed 10 days after the date of the filing of the request therefor.

PROCEDURE AS TO HEARINGS, PUBLICATION, ETC.

201.156 Notice and hearing prior to promulgation of rules and regulations.—Prior to the promulgation of any rule or regulation contemplated by section 402 of the act, notice shall be given by publication in the Federal Register of intention to promulgate such rule or regulation and of the time and place of a public hearing to be held with reference thereto. Such hearings shall be conducted by the Secretary of Agriculture or by such employee or employees of the Department of Agriculture as may be designated to preside thereat. The presiding officer shall conduct the hearing in an orderly and informal manner, according to such procedure as he may announce at the commencement of the hearing. Any rule or regulation promulgated under section 402 of the act shall become effective on the date fixed in the promulgation, which date shall be not less than 30 days after publication in the Federal Register. Any rule or regulation may be amended or revoked in the same manner as is provided for its promulgation.

201.157 Publication of judgments and orders.—After judgment by a court, or the issuance of a cease and desist order, in any case or proceeding arising under this act, notice thereof shall be given by publication in Service and Regulatory Announcements of the Department, or by issuing a press release containing any information pertinent to the issuance of the judgment by the court or to the issuance of the cease and desist order, or by such other media as the Deputy Administrator for Marketing Services, Agricultural Marketing Service, may designate from time to time.

201.158 Proceedings under section 302(a) to show cause why seed or screenings should be admitted into the United States.—When seed or screenings have been refused admission into the United States under the act or the joint regulations promulgated thereunder, the consignee of such seed or screenings may submit a request to the Deputy Administrator for Marketing Services, Agricultural Marketing Service, for a hearing in which he may show cause, if any he have, why such seed or screenings should be admitted. Request for such

hearing shall be embodied in a writing signed by the owner or consignee or by his attorney or agent. The Deputy Administrator for Marketing Services, Agricultural Marketing Service, shall thereupon fix, and notify the owner or consignee of, the time when and place at which the hearing will be held. The hearing shall be conducted in an orderly and informal manner by the Secretary, or by a presiding officer duly designated by him, and it shall be governed by such rules of procedure as the presiding officer shall announce at the opening of the hearing. The determination as to whether the seed or screenings may be admitted into the United States shall be made by the Secretary within a reasonable time after the close of the hearing, and the consignee of the seed or screenings and the Secretary of the Treasury shall be duly notified as to such determination.

201.159 Proceedings under section 305(b) to determine whether foreign alfalfa or red clover seed is not adapted for general agricultural use in the United States.—The public hearings which shall be held from time to time for the purpose of determining whether seed of alfalfa or red clover from any foreign country or region is not adapted for general agricultural use in the United States shall be conducted by the Secretary, or by a presiding officer duly designated by him. Such hearings shall be conducted in an orderly and informal manner in accordance with such procedure as the presiding officer shall announce at the opening of each hearing. The Secretary shall, within a reasonable time after the close of the public hearing, make and publish his determination as to whether the said seed is adapted for general agricultural use in the United States. Publication of the determination shall be made in the Federal Register, and through such other media as the Secretary may deem appropriate.

JOINT RULES AND REGULATIONS OF THE SECRETARY OF AGRICULTURE AND THE SECRETARY OF THE TREASURY FOR THE ENFORCEMENT OF THE FEDERAL SEED ACT OF AUGUST 9, 1939

(Title 7, Ch. I, Pt. 201 of the Code of Federal Regulations) (Treasury Decision
No. 50071, as amended)

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DEFINITIONS

201.201 Agricultural seeds.—The term “agricultural seeds” means those seeds so defined in the regulations of the Secretary of Agriculture.

201.202 Vegetable seeds.—The term “vegetable seeds” means those seeds so defined in the regulations of the Secretary of Agriculture.

201.203 Screenings.—The term “screenings” means chaff, sterile florets, immature seed, weed seed, inert matter, and any other materials removed in any

way from any seeds in any kind of cleaning or processing and which contains less than 25 percent of live agricultural or vegetable seeds.

201.204 Agricultural Marketing Service.—The term “Agricultural Marketing Service” means the Agricultural Marketing Service of the United States Department of Agriculture.

201.205 Collector of customs.—The term “collector of customs” includes any person authorized under the customs laws and regulations to perform the duties of a collector of customs.

201.206 Pure live seed.—The term “pure live seed” means the product of the percentage of germination plus the hard seed and the percentage of pure seed, divided by 100.

201.207 Other definitions.—The definitions for the purposes of title III of the Federal Seed Act shall include all other definitions in the regulations of the Secretary of Agriculture under the act.

SAMPLING

201.208 Seed.—(a) Except as provided in paragraph (b) of this section, the collector of customs shall draw and forward samples of all seed imported or offered for importation into the United States except the following kinds which he shall sample only when imported for seeding purposes and when declared for seeding purposes:

Barley	Canarygrass	Hemp	Soybean
Bean, adzuki	Castorbean	Oat	Sunflower
Bean, field	Celery	Peanut	Wheat
Bean, lima	Chickpea	Rice	
Bean, mung	Corn, field	Rye	
Buckwheat, com-	Cowpea	Safflower	
mon	Flax	Sesame	

(b) It is not ordinarily practical to sample and test small lots in importations of seed. The size of lots not ordinarily sampled is shown in table 3 in § 201.221a. No release by the United States Department of Agriculture will be necessary for seed not sampled.

201.209 Screenings.—The collector of customs shall upon request received prior to importation from the Deputy Administrator for Marketing Services, Agricultural Marketing Service, draw and forward samples of all screenings imported or offered for importation into the United States.

201.210 Method of sampling.—(a) In order to secure a representative sample, equal portions shall be taken from evenly distributed parts of the quantity of seed or screenings to be sampled. Access shall be had to all parts of that quantity.

(b) For free-flowing seed in bags or bulk, a probe or trier shall be used. For small free-flowing seed in bags a probe or trier long enough to sample all portions of the bag should be used.

(c) Non-free-flowing seed, such as grass seed, uncleaned seed, or screenings, difficult to sample with a probe or trier, shall be sampled by thrusting the hand into the bulk and withdrawing representative portions.

(d) The portions shall be combined into a composite sample except that if the quantity represented to be a lot does not appear to be of uniform quality as required in paragraph (e) of this section the separate portions shall be forwarded together but without being combined into a composite sample.

(e) A quantity of seed designated as one lot shall be regarded as such for sampling only if every portion or bag of seed in the quantity is uniform within permitted tolerances as to percentage of pure seed, percentage of germination and hard seed, percentage of weed seed, and rate of occurrence of noxious weed seeds.

(f) When an importation consists of more than one lot, each lot shall be sampled separately.

(g) Sampling shall not proceed unless each container is stenciled or otherwise labeled to show the lot designation and the name of the kind, or kind and variety, appearing on the invoice and other entry papers.

201.211 Bulk.—Bulk seeds or screenings shall be sampled by inserting a long probe or thrusting the hand into the bulk as circumstances require in at least seven uniformly distributed parts of the quantity being sampled.

201.212 Bags.—(a) When an importation consists of five bags or less each bag shall be sampled.

(b) When an importation consists of more than five bags, every fifth bag but not less than five bags shall be sampled.

(c) When sampling seed in small containers which it is not practical to sample as required in paragraph (a) or (b) of this section, entire unopened containers may be taken in sufficient number to supply a minimum size sample as required in section 201.213. The sample may consist of the contents of one container, or two or more containers when combined.

201.213 Size of sample.—Samples of agricultural seed shall be not less than 1 quart. Samples of screenings shall be not less than 2 quarts. Samples of vegetable seed shall be not less than 1 pint, except that samples of one-fourth pint will be sufficient from importations of 5 pounds or less. Unused portions of samples of rare or expensive seeds will be returned by the Agricultural Marketing Service upon request of the importer.

201.214 Sealing and identifying samples.—Before being forwarded for analysis, test, or examination, the container of each sample shall be properly sealed, and identified in accordance with section 201.215.

201.215 Statement to accompany samples.—All samples shall be accompanied by a description of the lot of seed offered for importation, on a form provided for this purpose by the Department of Agriculture.

201.216 Forwarding samples.—Samples from the various ports shall be forwarded to seed laboratories in accordance with instructions of the Agricultural Marketing Service to be furnished to customs officers from time to time.

201.217 Notice to consignee.—The collector of customs shall immediately notify the owner or consignee that samples of seeds or screenings have been drawn and that the shipment shall be held intact pending a decision of the Agricultural Marketing Service in the matter.

201.218 Delivery under bond.—After samples of seed or screenings offered for importation into the United States from any foreign country have been drawn, such seed or screenings shall be admitted into the commerce of the United States only after the seed or screenings have been found to meet the requirements of the act and these regulations: *Provided however*, That if each container of such seed or screenings is stenciled or labeled to show the name of the kind, or the kind and variety, and a lot number or other designation identifying the lot of seed, collectors of customs may release from customs custody for delivery to the owner or consignee shipments which have been sampled, pending examination and decision in the matter, upon the execution on the appropriate form of either a customs single-entry bond or a customs term bond in such amount as is prescribed for such bond in customs regulations in force on date of entry, which bond shall contain a condition for the redelivery of the seed or screenings or any part thereof upon demand of the collector of customs at any time. Prior to being so admitted, the seed or screenings shall be kept intact and not tampered with in any way, or removed from the containers except under supervision as provided by regulation. The bond shall be filed with the collector of customs, who, in case of default, shall take appropriate action to effect the collection of liquidated damages equal to the value of the entire shipment as set forth in the entry plus the estimated duty thereon, if any.

201.219 Notice of removal.—The owner or consignee shall keep the Agricultural Marketing Service informed as to the location of seed or screenings subject to the act, after sampling by the collector of customs but before being finally admitted into the commerce of the United States.

EVIDENCE AS TO COUNTRY OR REGION WHERE SEED WAS GROWN

201.220 Certificate or declaration of origin.—(a) A certificate, attached to the invoice, of the properly authorized official of the foreign country in which the seed was grown, to the effect that the seed of alfalfa or red clover or any mixture of seeds containing 10 percent or more of either or both of such seeds was grown in that country, will be regarded as prima facie evidence of such fact. This certificate shall be in the following form:

CERTIFICATE OF ORIGIN BY FOREIGN OFFICIAL

City _____, Country _____, date _____
 I, _____, hereby certify
 (Name of official)
 that the seed contained in ____ bags, marked _____, described in invoice _____
 (Number or date)
 to which this certificate is attached, was grown in _____
 (Name of country or countries or part thereof)

 (Name of official)

 (Official title)

(b) A declaration of the shipper attached to the invoice stating the country in which the seed of alfalfa or the seed of red clover or any mixture of seeds containing 10 percent or more of either or both of such seeds was grown will be regarded as prima facie evidence of such fact. The declaration shall be in the following form:

DECLARATION OF ORIGIN BY SHIPPER

City _____, Country _____, date _____
 I, the undersigned _____, the shipper of the seed contained in
 _____ bags, marked _____ described in invoice _____, to which this declaration
 (Number or date)
 is attached, do hereby certify that such seed was grown in _____
 (Name of country or countries or part thereof)

 (Signature)

(c) If the information contained in the certificate or declaration provided for in paragraphs (a) and (b) of this regulation is not sufficient to establish the country or region of origin of the seed, or if the consular invoice is not accompanied by such certificate or declaration, other evidence as to the origin may be considered, or the seed may be permitted entry after being stained 10 percent red.

EXEMPTIONS, DECLARATIONS AND LABELING

201.221 Exemptions.—(a) *Shipments through the United States.*—Seed shipped in bond through the United States is not subject to the import requirements of the act.

(b) *United States seed returned.*—Seed which has been grown in the United States, exported, and returned from a foreign country, is not subject to the prohibition against the importation of seed that is adulterated or unfit for seeding purposes: *Provided*, That proof in the form of statements or other documents, furnished by the United States importer to the Seed Branch, Agricultural Marketing Service, United States Department of Agriculture, establishes that (1) the seed was grown in the United States and was exported, (2) the seed was not admitted into the commerce of a foreign country, and (3) the seed was not commingled with other seed after being exported. The information required in subparagraph (1) of this paragraph shall include the quantity of seed and number of containers, the date of exportation from the United States, the distinguishing marks on the containers at the time of exportation, and the name and address of the United States exporter. The information required in subparagraphs (2) and (3) of this paragraph shall be contained in a statement or document issued by a customs or other Government official of the foreign country.

(c) *Seed for experimental or breeding purposes.*—Any lot of seed imported for sowing for experimental or breeding purposes and not for sale is not subject to the prohibition against the importation of seed that is adulterated or unfit for seeding purposes: *Provided*, That (1) a declaration is filed by the importer with the Seed Branch, Agricultural Marketing Service, United States Department of Agriculture, as specified in this paragraph, and (2) the quantity of seed in the lot will not exceed that shown in table 3 in § 201.221a for such seed. Seed imported for increase purposes only will not be considered to be imported for experimental or breeding purposes. The declaration required to be filed shall be in substantially the following form:

DECLARATION

SEED FOR EXPERIMENTAL OR BREEDING PURPOSES

The undersigned declares:

That he is a resident of _____
 (Street, City, and State)

That he is (owner of) (employed by) the firm of _____ (as
 a _____); That he (is) (represents) the (owner) (consignee)
 of the _____ pounds of _____ seed offered for im-
 (Kind of seed)

portation at _____ under entry No. _____
 (Port of entry)

and contained in _____ bags or containers marked _____ as de-
 scribed in invoice No. _____ dated _____; That said seed
 is being imported for making selections, crosses, or tests, or for other experi-
 mental or breeding purposes and will not be sold.

Signed _____

Date: _____.

201.221a Table 3.

	Weight of seed lot not ordinarily sampled, less than—	Weight of seed lot permitted entry for experi- mental or breeding purposes, not more than—		Weight of seed lot not ordinarily sampled, less than—	Weight of seed lot permitted entry for experi- mental or breeding purposes, not more than—
Agricultural seeds:	Pounds	Pounds	Agricultural seeds—Con.	Pounds	Pounds
Alfalfa.....	25	100	Cotton.....	100	500
Alfilaria.....	25	100	Cowpea.....	100	500
Alcyceclover.....	25	100	Crested dogtail.....	25	100
Bahiagrass.....	25	100	Crotalaria, lance.....	25	100
Barley.....	100	500	Crotalaria, showy.....	25	100
Bean, adzuki.....	100	500	Crotalaria, slender- leaf.....	25	100
Bean, field.....	100	500	Crotalaria, striped.....	25	100
Bean, mung.....	100	500	Crotalaria, Sunn.....	25	100
Bean (see Velvetbean).			Crownvetch.....	25	100
Beet, field.....	100	500	Dallisgrass.....	25	100
Beet, sugar.....	100	1,000	Dichondra.....	25	100
Beggarweed.....	25	100	Dropseed, sand.....	25	100
Bentgrass or.....	25	100	Emmer.....	100	500
Bentgrass, colo- nial.....	25	100	Fescue, Chewings.....	25	100
Bentgrass, creep- ing.....	25	100	Fescue, hair.....	25	100
Bentgrass, velvet.....	25	100	Fescue, meadow.....	25	100
Bermuda-grass.....	25	100	Fescue, red.....	25	100
Bluegrass, annual.....	25	100	Fescue, sheep.....	25	100
Bluegrass, bulbous.....	25	100	Fescue, tall.....	25	100
Bluegrass, Canada.....	25	100	Flax.....	25	100
Bluegrass, Kentucky.....	25	100	Grama, blue.....	25	100
Bluegrass, rough.....	25	100	Grama, side-oats.....	25	100
Bluegrass, Texas.....	25	100	Guar.....	25	100
Bluegrass, wood.....	25	100	Guineagrass.....	25	100
Bluestem, big.....	25	100	Hardinggrass.....	25	100
Bluestem, little.....	25	100	Hemp.....	100	500
Bluestem, sand.....	25	100	Indiangrass, yellow.....	25	100
Bluestem, yellow.....	25	100	Indigo, hairy.....	25	100
Brome, field.....	25	100	Japanese lawngrass.....	25	100
Brome, mountain.....	25	100	Johnsongrass.....	25	100
Brome, smooth.....	25	100	Kudzu.....	25	100
Broomcorn.....	100	500	Lentil.....	25	100
Buckwheat.....	100	500	Lespedeza, Korean.....	25	100
Buffalograss.....	25	100	Lespedeza, sericea or Chinese.....	25	100
Buffelgrass.....	25	100	Lespedeza, Siberian.....	25	100
Bur-clover, California.....	25	100	Lespedeza, striate.....	25	100
Bur-clover, spotted.....	25	100	Lovegrass, sand.....	25	100
Burnet, little.....	25	100	Lupine, blue.....	100	500
Buttonclover.....	25	100	Lupine, white.....	100	500
Canarygrass.....	25	100	Lupine, yellow.....	100	500
Canarygrass, reed.....	25	100	Manilagrass.....	25	100
Carpetgrass.....	25	100	Meadow foxtail.....	25	100
Castorbean.....	100	500	Medick, black.....	25	100
Chess, soft.....	25	100	Millet, browntop.....	25	100
Chickpea.....	100	500	Millet, foxtail.....	25	100
Clover alsike.....	25	100	Millet, Japanese.....	25	100
Clover, berseem.....	25	100	Millet, pearl.....	25	100
Clover, cluster.....	25	100	Millet, proso.....	25	100
Clover, crimson.....	25	100	Molassesgrass.....	25	100
Clover, large hop.....	25	100	Mustard.....	25	100
Clover, small hop (suckling).....	25	100	Mustard, black.....	25	100
Clover, ladino.....	25	100	Mustard, white.....	25	100
Clover, lappa.....	25	100	Napiergrass.....	25	100
Clover, Persian.....	25	100	Oat.....	100	500
Clover, red or.....	25	100	Oatgrass, tall.....	25	100
Red clover, mam- moth.....	25	100	Orchardgrass.....	25	100
Red clover, me- dium.....	25	100	Panicgrass.....	25	100
Clover, rose.....	25	100	Peanut.....	100	500
Clover, strawberry.....	25	100	Pea, field.....	100	500
Clover, sub (subter- anean).....	25	100	Poa trivialis. (See bluegrass, rough.)		
Clover, white (also see clover, ladino).....	25	100	Rape, annual.....	25	100
Clover (also see Alyce- clover, Bur-clover, Buttonclover, Sour- clover, Sweetclover).			Rape, bird.....	25	100
Corn, field.....	100	1,000	Rape, turnip.....	25	100
Corn, pop.....	100	1,000	Rape, winter.....	25	100
			Redtop.....	25	100
			Rescuegrass.....	25	100
			Rhodesgrass.....	25	100
			Rice.....	100	500
			Ricegrass, Indian.....	25	100
			Roughpea.....	100	500
			Rye.....	100	500

TABLE 3.—Continued

	Weight of seed lot not ordinarily sampled, less than—	Weight of seed lot permitted entry for experi- mental or breeding purposes, not more than—		Weight of seed lot not ordinarily sampled, less than—	Weight of seed lot permitted entry for experi- mental or breeding purposes, not more than—
Agricultural seeds—Con.	<i>Pounds</i>	<i>Pounds</i>	Vegetable seeds:	<i>Pounds</i>	<i>Pounds</i>
Ryegrass, Italian.....	25	100	Artichoke.....	25	50
Ryegrass, perennial....	25	100	Asparagus.....	25	50
Safflower.....	100	500	Asparagusbean.....	25	50
Sainfoin.....	100	500	Bean.....	25	200
Sesame.....	25	100	Bean, lima.....	25	200
Sesbania.....	25	100	Bean, runner.....	25	200
Smilo.....	25	100	Beet.....	25	50
Sorghum.....	100	1,000	Broadbean.....	25	200
Sorghum alum.....	25	100	Broccoli.....	5	10
Sorghum.....	25	100	Brussels sprouts.....	5	10
Sourclover.....	25	100	Cabbage.....	5	10
Soybean.....	100	500	Cantaloupe. (See		
Spelt.....	100	500	Muskmelon.)		
Sudangrass.....	25	100	Cardoon.....	25	50
Sunflower.....	100	500	Carrot.....	5	10
Sweetclover or.....	25	100	Cauliflower.....	5	10
Sweetclover, white....	25	100	Celeriac.....	5	10
Sweetclover, yellow....	25	100	Celery.....	5	10
Sweet vernalgrass.....	25	100	Chard, Swiss.....	25	50
Switchgrass.....	25	100	Chicory.....	5	10
Timothy.....	25	100	Chinese cabbage.....	5	10
Tobacco.....	1	1	Citron.....	25	50
Trefoil, big.....	25	100	Collards.....	5	10
Trefoil, birdsfoot.....	25	100	Corn, sweet.....	25	200
Vaseygrass.....	25	100	Cornsalad.....	5	10
Veldtgrass.....	25	100	Cowpea.....	25	200
Velvetbean.....	100	500	Cress, garden.....	5	10
Velvetgrass.....	25	100	Cress, water.....	5	10
Vetch or.....	100	500	Cucumber.....	25	50
Vetch, common.....	100	500	Dandelion.....	5	10
Vetch, hairy.....	100	500	Eggplant.....	5	10
Vetch, Hungar- ian.....	100	500	Endive.....	5	10
Vetch, Mon- antha.....	100	500	Kale.....	5	10
Vetch, narrow- leaf.....	100	500	Kale, Chinese.....	5	10
Vetch, purple.....	100	500	Kohlrabi.....	5	10
Vetch, woolypod....	100	500	Leek.....	5	10
Wheat or.....	100	500	Lettuce.....	5	10
Wheat, common.....	100	500	Muskmelon.....	25	50
Wheat, club.....	100	500	Mustard.....	5	10
Wheat, durum.....	100	500	Mustard, spinach.....	5	10
Wheat, Polish.....	100	500	Okra.....	25	50
Wheat, poulard....	100	500	Onion.....	5	10
Wheatgrass, fairway crested.....	25	100	Onion, Welsh.....	5	10
Wheatgrass, standard crested.....	25	100	Pak-choi.....	5	10
Wheatgrass, interme- diate.....	25	100	Parsley.....	5	10
Wheatgrass, pubes- cent.....	25	100	Parsnip.....	5	10
Wheatgrass, slender....	25	100	Pea.....	25	200
Wheatgrass, tall.....	25	100	Pepper.....	5	10
Wheatgrass, western....	25	100	Pumpkin.....	25	50
Wild-rye, Canada.....	25	100	Radish.....	25	50
Wild-rye, Russian.....	25	100	Rhubarb.....	5	10
Zoysia Japonica. (See Japanese lawn- grass.)			Rutabaga.....	5	10
Zoysia matrella. (See Manilagrass.)			Salsify.....	25	50
			Sorrel.....	5	10
			Soybean.....	25	200
			Spinach.....	25	50
			Spinach, New Zea- land.....	25	50
			Squash.....	25	50
			Tomato.....	5	10
			Tomato, husk.....	5	10
			Turnip.....	5	10
			Watermelon.....	25	50

201.222 Declaration of purpose and labeling as to kind and variety.—(a)
 Entries covering all importations of seed of—

Broadbean	Pea, field
Guar	Pepper
Lentil	Proso
Lettuce	Pumpkin
Lupine	Rape, annual
Millet, foxtail, (German, Hungarian, and Golden.)	Rape, bird
Mustard	Rape, turnip
Mustard, black	Rape, winter
Mustard, white	Sorghum
Parsley	Vetch
Pea, Austrian winter	Watermelon

shall contain a statement by the importer setting forth the use for which imported. When imported for seeding purposes such seed is subject to the import provisions of the act.

(b) Entries covering all importations for seeding purposes of seed of—

Barley	Flax
Bean, adzuki	Hemp
Bean, field	Oat
Bean, lima	Peanut
Bean, mung	Rice
Buckwheat, common	Rye
Canarygrass	Safflower
Castorbean	Sesame
Celery	Soybean
Chickpea	Sunflower
Corn, field	Wheat
Cowpea	

shall contain a statement by the importer that such seed is for seeding purposes and such seed is subject to the import requirement of the act.

(c) If any seed enumerated in section 201.222 is declared for seeding purposes and is found upon examination by the Agricultural Marketing Service not to meet the requirements of the Federal Seed Act, the importer shall be permitted to withdraw his declaration made under section 201.222 upon notification from the Agricultural Marketing Service that the seed may be released for feeding or manufacturing purposes. In this event, the importer shall be required to file a new declaration that no part of the importation will be used for seeding purposes.

(d) The collector of customs shall notify the Department of Agriculture of any change in the nature of a declaration made under this section.

(e) The invoice and any other labeling pertaining to vegetable seed offered for importation shall bear the name of each kind and variety of the vegetable seed, and the invoice and any other labeling pertaining to agricultural seed offered for importation shall bear the name of each kind or variety of the agricultural seed.

SCREENINGS

201.223 Screenings prohibited entry.—Screenings of all seed subject to the Federal Seed Act are prohibited entry into the United States except as provided under section 201.224.

201.224 Screenings permitted entry.—Screenings consisting of wheat, oats, rye, barley, buckwheat, field corn, sorghum including broomcorn, flax, millet, proso, soybeans, cowpeas, field peas, and field beans may be imported, provided such screenings are not imported for seeding purposes and are so declared by the words "screenings for processing, not for seeding" in the invoice or other papers required to be presented to the collector of customs.

SEED ADULTERATED OR UNFIT FOR SEEDING PURPOSES

201.225 Cleaning or processing.—Seed which is found under the provisions of the act to be adulterated or unfit for seeding purposes may be cleaned or processed under the supervision of an employee or authorized agent of the United States Department of Agriculture. The cleaning or processing shall be

at the expense of the owner or consignee who shall reimburse the Government for all expenses incurred in connection with such supervision, including travel, per diem or subsistence, and salaries of officers or employees of the United States. Salary shall be reimbursed at the rate of \$4.50 per hour in connection with supervision during normal working hours of the officer or employee and \$5.80 per hour in connection with supervision outside normal working hours of the officer or employee. The identity of the seed shall be maintained at all times to the satisfaction of the persons supervising the cleaning or processing. The refuse from such cleaning shall be placed in containers and securely sealed and identified. If upon analysis, test, or examination of a representative sample of the cleaned seed, it is found that the requirements of the act have been met that portion of the seed may be admitted.

201.226 Destruction of refuse.—The refuse from such cleaning shall be destroyed under the supervision of an employee or authorized agent of the United States Department of Agriculture. The destruction of refuse shall be at the expense of the owner or consignee who shall reimburse the Government for all expenses incurred in connection with such supervision, including travel, per diem or subsistence, and salaries of officers or employees of the United States. Salary shall be reimbursed at the rate of \$4.50 per hour in connection with supervision during normal working hours of the officer or employee and \$5.80 per hour in connection with supervision outside the normal working hours of the officer or employee.

201.227 Report to collector of customs.—A report of the cleaning and processing and the destruction of the refuse, stating the amount by weight in each instance, shall be submitted to the collector of customs at the port of entry of such seed by the Agricultural Marketing Service.

MISBRANDED SEED

201.228 Correction of labeling.—Seed being imported or offered for importation, the labeling of which is false or misleading in any respect, shall be refused admission into the commerce of the United States until such labeling has been corrected to meet the requirements of the act and the rules and regulations. Any correction of the labeling upon the containers shall be done under the supervision of the U. S. Department of Agriculture at the expense of the owner or consignee, who shall reimburse the Government for all expenses incurred in connection with such supervision, including travel, per diem or subsistence, and salaries of officers or employees of the United States. Salary shall be reimbursed at the rate of \$4.50 per hour in connection with supervision during normal working hours of the officer or employee and \$5.80 per hour in connection with supervision outside the normal working hours of the officer or employee. When a representative of the Department of Agriculture finds upon examination of seed that it is incorrectly described on the invoice presented at the time of entry, a finding of "false labeling" under the Federal Seed Act of August 9, 1939, will be made. The seed will be refused admission until after the importer has given satisfactory assurance to the Department of Agriculture that he has taken appropriate steps to file with the collector of customs at the port of entry a corrected customs invoice describing the seed in terms which will not constitute "false labeling." Upon receipt of such assurance, the Department of Agriculture will notify the collector of the nature of the "false labeling" and that the seed may be granted admission under the Federal Seed Act. The importer will be liable for the payment of liquidated damages under the bond filed in connection with the entry unless a corrected customs invoice is produced within the time provided for by law or regulations.

MIXING SEED

201.229 Prohibition against and exception.—Mixing any seed or screenings with a lot or shipment of seed or screenings offered for entry which has been found to be in violation of the act or these regulations is prohibited, except that in cases where it shall appear to the satisfaction of the Deputy Administrator for Marketing Services, Agricultural Marketing Service, that two or more such lots or shipments of seed or screenings offered for entry are of substantially the same quality and origin, they may be mixed for the purpose of re-cleaning upon a written permit from the Deputy Administrator for Marketing Services, Agricultural Marketing Service.

REJECTED SEED OR SCREENINGS

201.230 Exportation or destruction.—(a) Seed or screenings refused admission into the commerce of the United States shall be exported under customs supervision by the owner or consignee within 12 months of the date of notice of such refusal or at the expiration of such 12-month period the rejected seed or screenings shall be destroyed under the supervision of an employee or authorized agent of the United States Department of Agriculture in such manner as may be determined by the United States Department of Agriculture.

(b) When seed or screenings which have been refused admission into the commerce of the United States are exported the collector of customs shall notify the office of the United States Department of Agriculture that issued the notice of rejection and shall also submit to said office a sample drawn from the seed at the time of exportation. (c) The destruction of seed or screenings refused admission shall be at the expense of the owner or consignee who shall reimburse the Government for all expenses incurred in connection with such supervision, including travel, per diem or subsistence, and salaries of officers and employees of the United States. Salary shall be reimbursed at the rate of \$4.50 per hour in connection with supervision during normal working hours of the officer or employee and \$5.80 per hour in connection with supervision outside the normal working hours of the officer or employee. The United States Department of Agriculture shall make a report of such destruction giving the amount by weight to the collector of customs at the port of entry of such seed or screenings.

PROCEDURE AS TO PUBLIC HEARINGS

201.231 Notice and hearing prior to promulgation of rules and regulations.—Prior to the promulgation of any rule or regulation contemplated by section 402(b) of the act, notice shall be given by publication in the Federal Register of intention to promulgate such rule or regulation and of the time and place of a public hearing to be held with reference thereto. Such hearing shall be conducted by the Secretary of the Treasury and the Secretary of Agriculture, acting jointly or severally, or by such employee or employees of the Department of Agriculture or of the Department of the Treasury, as the case may be, as may be designated to preside thereat. The presiding officer shall conduct the hearing in an orderly and informal manner, according to such procedure as he may announce at the commencement of the hearing. Any rule or regulation promulgated under section 402(b) of the act shall become effective on the date fixed in the promulgation, which date shall be not less than 30 days after publication in the Federal Register. Any rule or regulation may be amended or revoked in the same manner as is provided for its promulgation.

FEDERAL SEED ACT

(Approved August 9, 1939 (53 Stat. 1275))

(As Amended (7 U.S.C. 1551-1610))

AN ACT

To regulate interstate and foreign commerce in seeds; to require labeling and to prevent misrepresentation of seeds in interstate commerce; to require certain standards with respect to certain imported seeds; and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Federal Seed Act."

TITLE I—DEFINITIONS

SEC. 101. (a) When used in this Act—

(1) The term "United States" means the several States, Alaska, District of Columbia, Hawaii, and Puerto Rico.

(2) The term "person" includes a partnership, corporation, company, society, or association.

(3) The term "interstate commerce" means—

(A) commerce between any State, Territory, possession, or the District of Columbia, and any other State, Territory, possession, or the District of Columbia; or

(B) commerce between points within the same State, Territory, or possession, or the District of Columbia, but through any place outside thereof; or

(C) commerce within the District of Columbia.

(4) For the purpose of this Act with respecting to labeling for variety and origin (but not in anywise limiting the foregoing definition), seeds shall be considered to be in interstate commerce, or delivered for transportation in interstate commerce, if such seeds are part of, or delivered for transportation in, that current of commerce usual in the transportation and/or merchandising of seeds, whereby such seeds are sent from one State with the expectation that they will end their transit in another, including, in addition to cases within the above general description, all cases where seeds are transported or delivered for transportation to another State, or for processing or cleaning for seeding purposes within the State and shipment outside the State of the processed or cleaned seeds. Seeds normally in such current of commerce shall not be considered out of such current through resort being had to any means or device intended to remove transactions in respect thereto from the provisions of this Act.

(5) The term "foreign commerce" means commerce between the United States, its possessions, or any Territory of the United States, and any foreign country.

(6) (a) The term "district court of the United States" means any court exercising the powers of a district court of the United States.

(b) The term "circuit court of appeals," in case the principal place of business or the place of residence of a person against whom a cease and desist order is issued is in the District of Columbia, includes the Court of Appeals of the District of Columbia.

(7) The term—

(A) "Agricultural seeds" shall include grass, forage, and field crop seeds, as follows:

Agropyron cristatum (L.) Beauv.—Crested wheatgrass.

Agropyron pauciflorum (Schwein.) Hitchc.—Slender wheatgrass.

Agropyron smithii Rydb.—Bluestem.

Agrostis alba L.—Redtop.

Agrostis canina L.—Velvet bent.

Agrostis palustris Huds.—Creeping bent.

Agrostis spp.—Bentgrasses.

Avena spp.—Oat.

Beta vulgaris L.—Field beet.

Brassica napus L.—Winter rape.

Bromus inermis Leyss.—Smooth brome.

Chloris gayana Kunth.—Rhodes grass.

Cynosurus cristatus L.—Crested dogtail.

Dactylis glomerata L.—Orchard grass.

Echinochloa crusgalli frumentacea (Roxb.) Wight.—Japanese millet.
Fagopyrum vulgare Hill.—Common buckwheat.
Festuca spp.—Fescue.
Gossypium spp.—Cotton.
Hordeum spp.—Barley.
Lespedeza sericea (Thunb.) Miq.—Chinese lespedeza.
Lespedeza stipulacea Maxim.—Korean lespedeza.
Lespedeza striata (Thumb.) Hook. and Arn.—Common and Kobe lespedeza.
Linum usitatissimum L.—Flax.
Lolium multiflorum Lam.—Italian ryegrass.
Lolium perenne L.—Perennial ryegrass.
Medicago arabica (L.) All.—Bur-clover.
Medicago hispida Gaertn.—Bur-clover.
Medicago lupulina L.—Black medick.
Medicago sativa L.—Alfalfa.
Melilotus alba Desr.—White sweetclover.
Melilotus indica (L.) All.—Sourclover.
Melilotus officinalis (L.) Lam.—Yellow sweetclover.
Melinis minutiflora Beauv.—Molasses grass.
Oryza sativa L.—Rice.
Panicum fasciculatum Swartz.—Browntop millet.
Panicum miliaceum L.—Proso.
Paspalum dilatatum Poir.—Dallis grass.
Paspalum notatum Fluegge.—Bahia grass.
Pennisetum glaucum (L.) R. Br.—Pearl millet.
Pennisetum purpureum Schumach.—Napier grass.
Phleum pratense L.—Timothy.
Phalaris arundinacea L.—Reed canary grass.
Pisum sativum arvense L. (Poir).—Field pea, Austrian winter pea.
Poa annua L.—Annual bluegrass.
Poa compressa L.—Canada bluegrass.
Poa memoralis L.—Wood bluegrass.
Poa pratensis L.—Kentucky bluegrass.
Poa trivialis L.—Rough bluegrass.
Secale cereale L.—Rye.
Setaria italica (L.) Beauv.—Foxtail, German, Hungarian, or golden millet.
Soja max (L.) Piper.—Soybean.
Sorghum vulgare Pers.—Sorghum.
Sorghum vulgare sudanense (Piper) Hitchc.—Sudan grass.
Stizolobium utile (Wall.) Piper and Tracy.—Velvetbean.
Trifolium dubium Sibth.—Suckling clover.
Trifolium hybridum L.—Alsike clover.
Trifolium incarnatum L.—Crimson clover.
Trifolium pratense L.—Red clover.
Trifolium repens L.—White clover.
Triticum spp.—Wheat; spelt; emmer.
Vicia angustifolia (L.) Reich.—Narrowleaf vetch.
Vicia atropurpurea Desf.—Purple vetch.
Vicia dasycarpa Ten.—Woolypod vetch.
Vicia monantha Desf.—Monontha vetch.
Vicia pannonica Crantz.—Hungarian vetch.
Vicia sativa L.—Common vetch.
Vicia villosa Roth.—Hairy vetch.
Vigna sinensis (Torner) Savi.—Cowpea.
Zea mays L.—Field corn:

Provided, That the Secretary of Agriculture is authorized by rules and regulations to add to or take from such list or agricultural seed, when he finds that any seeds are or are not used for seeding purposes in the United States.

(B) "Vegetable seeds" shall include the seeds of those crops that are or may be grown in gardens or on truck farms and are or may be generally known and sold under the name of vegetable seeds.

(8) (A) For the purpose of title II, the term "weed seeds" means the seeds or bulblets of plants recognized as weeds either by the law or rules and regulations of—

(i) The State into which the seed is offered for transportation, or transported; or

(ii) Alaska, Hawaii, Puerto Rico, Guam, or District of Columbia into which transported, or District of Columbia in which sold.

(B) For the purpose of title III, the term "weed seeds" means seeds or bulblets of plants which are found by the Secretary of Agriculture to be detrimental to the agricultural interests of the United States, or any part thereof.

(9) (A) For the purpose of title II, the term "noxious-weed seeds" means the seeds or bulblets of plants recognized as noxious—

(i) by the law or rules and regulations of the State into which the seed is offered for transportation, or transported;

(ii) by the law or rules and regulations of Alaska, Hawaii, Puerto Rico, Guam, or the District of Columbia, into which transported, or District of Columbia in which sold; or

(iii) by the rules and regulations of the Secretary of Agriculture under this Act, when after investigation he shall determine that a weed is noxious in the United States or in any specifically designated area thereof.

(B) For the purpose of title III, the term "noxious-weed seeds" means the seeds of *Lepidium draba* L., *Lepidium repens* (Schrenk) Boiss, *Hymenophyllum pubescens* C. A. Mey., white top; *Cirsium arvense* (L.) Scop., Canada thistle; *Cuscuta* spp., dodder; *Agropyron repens* (L.) Beauv., quackgrass; *Sorghum halepense* (L.) Pers., Johnson grass; *Convolvulus arvensis* L., bindweed; *Centaurea picris* Pall., Russian knapweed; *Sonchus arvensis* L., perennial sow thistle; *Euphorbia esula* L., leafy spurge; and seeds or bulblets of any other kinds which after investigation the Secretary of Agriculture finds should be included.

(10) The term "origin" means the State, Alaska, District of Columbia, Hawaii, Puerto Rico, or possession of the United States, or the foreign country, or designated portion thereof, where the seed was grown.

(11) The term "kind" means one or more related species or sub-species which singly or collectively is known by one common name, for example, wheat, oat, vetch, sweetclover, cabbage, cauliflower, and so forth.

(12) The term "variety" means a subdivision of a kind which is characterized by growth, plant, fruit, seed, or other characters by which it can be differentiated from other sorts of the same kind, for example, Marquis wheat, Flat Dutch cabbage, Manchu soybeans, Oxheart carrot, and so forth.

(13) The term "type" means either (A) a group of varieties so nearly similar that the individual varieties cannot be clearly differentiated except under special conditions, or (B) when used with a variety name means seed of the variety named which may be mixed with seed of other varieties of the same kind and of similar character, the manner of and the circumstances connected with the use of the designation to be governed by rules and regulations prescribed under section 402 of this Act.

(14) The term "germination" means the percentage of seeds capable of producing normal seedlings under ordinarily favorable conditions (not including) seeds which produce weak, malformed, or obviously abnormal sprouts), determined by methods prescribed under section 403 of this Act.

(15) The term "hard seeds" means the percentage of seeds which because of hardness or impermeability do not absorb moisture or germinate under prescribed tests but remain hard during the period prescribed for germination of the kind of seed concerned, determined by methods prescribed under section 403 of this Act.

(16) The term "inert matter" means all matter not seeds, and includes among others broken seeds, sterile florets, chaff, fungus bodies, and stones, determined by methods prescribed under section 403 of this Act.

(17) The term "pure live seed" for the purpose of title III means that portion of any lot of seed subject to this Act that consists of live agricultural or vegetable seed determined by methods prescribed under section 403 of this Act.

(18) The term "label" means the display or displays of written, printed, or graphic matter upon or attached to the container of seed.

(19) The term "labeling" includes all labels, and other written, printed, and graphic representations, in any form whatsoever, accompanying and pertaining to any seed whether in bulk or in containers, and includes invoices.

(20) The term "advertisement" means all representations, other than those on the label, disseminated in any manner or by any means, relating to seed within the scope of this Act.

(21) Subject to such tolerances as the Secretary of Agriculture is authorized to prescribe under the provisions of this Act—

(A) the term "false labeling" means any labeling which is false or misleading in any particular;

(B) the term "false advertisement" means any advertisement which is false or misleading in any particular.

(22) The term "screenings" shall include chaff, sterile florets, immature seed, weed seed, inert matter, and any other materials removed in any way from any seeds in any kind of cleaning or processing and which contain less than 25 per centum of live agricultural or vegetable seeds.

(23) The term "in bulk" refers to seed when loose either in vehicles of transportation or in storage, and not to seed in bags or other containers.

(24) The term "treated" means given an application of a substance or subjected to a process designed to reduce, control, or repel disease organisms, insects or other pests which attack seeds or seedlings growing therefrom.

(25) The term "seed certifying agency" means (A) an agency authorized under the laws of a State, Territory, or possession, to officially certify seed, or (B) an agency of a foreign country determined by the Secretary of Agriculture to adhere to procedure and standards for seed certification comparable to those adhered to generally by seed certifying agencies under (A).

SEC. 102. Any labeling, advertisement, or other representation subject to this Act which represents that any seed is certified or registered seed shall be deemed to be false in this respect unless (a) it has been determined by a seed certifying agency that such seed was produced, processed, and packaged, and conformed to standards of purity as to kind or variety, in compliance with the rules and regulations of such agency pertaining to such seed; and (b) the seed bears an official label issued for such seed by a seed certifying agency stating that the seed is certified or registered.

TITLE II—INTERSTATE COMMERCE

PROHIBITIONS RELATING TO INTERSTATE COMMERCE IN CERTAIN SEEDS

SEC. 201. It shall be unlawful for any person to transport or deliver for transportation in interstate commerce—

(a) Any agricultural seeds or any mixture of agricultural seeds for seeding purposes, unless each container bears a label giving the following information in accordance with rules and regulations prescribed under section 402 of this Act:

(1) The name of (A) kind, or (B) kind and variety, or (C) kind and type, for each agricultural seed component present in excess of 5 per centum of the whole and the percentage by weight of each: *Provided*, That such components are expressed in accordance with the category designated under (A), (B), or (C);

(2) Lot number or other identification;

(3) Origin, stated in accordance with paragraph (a) (1) of this section, of each agricultural seed present which has been designated by the Secretary of Agriculture as one on which a knowledge of the origin is important from the standpoint of crop production, if the origin is known, and if each such seed is present in excess of 5 per centum. If the origin of such agricultural seed or seeds is unknown, that fact shall be stated;

(4) Percentage by weight of weed seeds, including noxious-weed seeds;

(5) Kinds of noxious-weed seeds and the rate of occurrence of each, which rate shall be expressed in accordance with and shall not exceed the rate allowed for shipment, movement, or sale of such noxious-weed seeds by the law and regulations of the State into which the seed is offered for transportation or transported or in accordance with the rules and regulations of the Secretary of Agriculture, when under the provisions of section 101 (a) (9) (A) (iii) he shall determine that weeds other than those designated by State requirements are noxious;

(6) Percentage by weight of agricultural seeds other than those included under paragraph (a) (1) of this section;

(7) Percentage by weight of inert matter;

(8) For each agricultural seed, in excess of 5 per centum of the whole, stated in accordance with paragraph (a) (1) of this section, and each kind or variety or type of agricultural seed shown in the labeling to be present in a proportion of 5 per centum or less of the whole, (A) percentage of germination, exclusive of hard seed, (B) percentage of hard seed, if present, and (C) the calendar month and year the test was completed to determine such percentages;

(9) Name and address of (A) the person who transports, or delivers for transportation, said seed in interstate commerce, or (B) the person to whom the seed is sold or shipped for resale, together with a code designation approved by the Secretary of Agriculture under rules and regulations prescribed under section 402 of this Act, indicating the person who transports or delivers for transportation said seed in interstate commerce;

(b) Any vegetable seeds, for seeding purposes, in containers, unless each container bears a label giving the following information in accordance with rules and regulations prescribed under section 402 of this Act;

(1) Name of each kind and variety of seed and if two or more kinds of varieties are present, the percentage of each;

(2) For each variety of vegetable seed which germinates less than the standard last established by the Secretary of Agriculture, as provided under section 403 (c) of this Act—

(i) percentage of germination, exclusive of hard seed;

(ii) percentage of hard seed, if present;

(iii) the calendar month and year the test was completed to determine such percentages;

(iv) the words "Below Standard"; and

(3) Name and address of—

(A) The person who transports, or delivers for transportation, said seed in interstate commerce; or

(B) the person to whom the seed is sold or shipped for resale, together with a code designation approved by the Secretary of Agriculture under rules and regulations prescribed under section 402 of this Act, indicating the person who transports or delivers for transportation said seed in interstate commerce.

(c) Any agricultural or vegetable seed unless the test to determine the percentage of germination required by this section shall have been completed within a five-month period, exclusive of the calendar month in which the test was completed, immediately prior to transportation or delivery for transportation in interstate commerce: *Provided, however,* That the Secretary of Agriculture may by rules and regulations designate: (a) a shorter period for kinds of agricultural or vegetable seed which he finds under ordinary conditions of handling will not maintain during the aforesaid five-month period, a germination within the established limits of tolerance; or (b) a longer period not to exceed nine months, exclusive of the calendar month in which the test was completed, for kinds of agricultural or vegetable seed which he finds under ordinary conditions of handling will maintain during such longer period a germination within the established limits of tolerance.

(d) Any agricultural seeds or vegetable seeds having a false labeling, or pertaining to which there has been a false advertisement, or to sell or offer for sale such seed for interstate shipment by himself or others.

(e) Seed which is required to be stained under the provisions of this Act and the regulations made and promulgated thereunder, and is not so stained.

(f) Seed which has been stained to resemble seed stained in accordance with the provisions of this Act and the regulations made and promulgated thereunder.

(g) Seed which is a mixture of seeds which are required to be stained or which are stained with different colors under the provisions of this Act and of the regulations made and promulgated thereunder, or which is a mixture of any seed required to be stained under the provisions of this Act and of the regulations made and promulgated thereunder, with seed of the same kind produced in the United States.

(h) Screenings of any seed subject to this Act, unless they are not intended for seeding purposes; and it is stated on the label, if in containers, or on the invoice, if in bulk, that they are intended for cleaning, processing or manufacturing purposes, and not for seeding purposes.

(i) Any agricultural seeds or any mixture thereof or any vegetable seeds or any mixture thereof, for seeding purposes, that have been treated, unless each container thereof bears a label giving the following information and statements in accordance with rules and regulations prescribed under section 402 of this Act:

"(1) A word or statement indicating that the seeds have been treated;

"(2) The commonly accepted coined, chemical (generic), or abbreviated chemical name of any substance used in such treatment;

"(3) If the substance used in such treatment in the amount remaining with the seeds is harmful to humans or other vertebrate animals, an appro-

priate caution statement approved by the Secretary of Agriculture as adequate for the protection of the public, such as "Do not use for food or feed or oil purposes": *Provided*, That the caution statement for mercurials and similarly toxic substances, as defined in said rules and regulations, shall be a representation of a skull and crossbones and a statement such as "This seed has been treated with POISON", in red letters on a background of distinctly contrasting color; and

(4) A description of any process used in such treatment, approved by the Secretary of Agriculture as adequate for the protection of the public.

RECORDS

SEC. 202. All persons transporting, or delivering for transportation, in interstate commerce, agricultural seeds shall keep for a period of three years a complete record of origin, germination, and purity of each lot of such agricultural seeds, and all persons transporting, or delivering for transportation, in interstate commerce, vegetable seeds shall keep for a period of three years a complete record of germination and variety of such vegetable seeds. The Secretary of Agriculture, or his duly authorized agents, shall have the right to inspect such records for the purpose of the effective administration of this Act.

EXEMPTIONS

SEC. 203. (a) The provisions of sections 201 and 202 shall not apply to any carrier in respect to any seed transported or delivered for transportation in the ordinary course of its business as a carrier: *Provided*, That such carrier is not engaged in processing or merchandising seed subject to the provisions of this Act; and such provisions shall not apply to seeds produced by any farmer on his own premises and sold by him directly to the consumer, provided such farmer is not engaged in the business of selling seeds not produced by him: *And provided further*, That such seeds produced or sold by him when transported or offered for transportation to any State, Territory, or District, shall not be exempted from the provisions of sections 201 and 202 unless said seeds shall be in compliance with the operation and effect of the laws of such State, Territory, or District, enacted in the exercise of its police power, to the same extent and in the same manner as though such seed had been produced, sold, offered or exposed for sale in such State, Territory, or District, and shall not be exempted therefrom by reason of being introduced therein in original packages or otherwise: *And provided further*, That such seeds produced or sold by him are in compliance with the seed laws of the State into which the seed is transported.

(b) The provisions of section 201 (a), (b) or (i) shall not apply—

(1) to seed or grain not intended for seeding purposes when transported or offered for transportation in ordinary channels of commerce usual for such seed or grain intended for manufacture or for feeding; or

(2) to seed intended for seeding purposes when transported or offered for transportation in interstate commerce—

(A) if in bulk, in which case, however, the invoice or other records accompanying and pertaining to such seed shall bear the various statements required for the respective seeds under sections 201 (a), (b), and (i); or

(B) if in containers and in quantities of twenty thousand pounds or more: *Provided*, That (i) the omission from each container of the information required under sections 201 (a), (b), and (i) is with the knowledge and consent of the consignee prior to the transportation or delivery for transportation of such seed in interstate commerce, (ii) each container shall have stenciled upon it or bear a label containing a lot designation, and (iii) the invoice or other records accompanying and pertaining to such seed shall bear the various statements required for the respective seeds under sections 201 (a), (b), and (i); or

(C) if consigned to a seed cleaning or processing establishment, to be cleaned or processed for seeding purposes: *Provided*, That (i) this fact is so stated in the invoice or other records accompanying and pertaining to such seed if the seed is in bulk or if the seed is in containers and in quantities of twenty thousand pounds or more, (ii) this fact is so stated on attached labels if the seed is in containers and in quantities less than twenty thousand pounds, and (iii) any such seed later to be labeled as to origin and/or variety shall be labeled as to origin and/or variety in accordance with rules and regulations prescribed under section 402 of this Act.

(c) When the Secretary of Agriculture finds that, because of the time interval between seed harvesting and sowing, or because of an emergency beyond human control, the information required by this Act as to the germination, and hard seed of certain kinds of seeds, cannot be given prior to transportation or delivery for transportation in interstate commerce, he may promulgate, with or without a hearing, rules and regulations providing that the provisions of section 201 (a) and (b) as to the required labeling for germination and hard seed shall not apply for such period and to such kinds of seed as he may specify in his said rules and regulations.

(d) The provisions of section 201 (a) and (b) relative to the labeling of agricultural and vegetable seeds with the percentages of the kind or variety or type of seeds shall not be deemed violated if there be other seeds in the container or bulk which could not be, or were not, identified because of their indistinguishability in appearance from the seeds intended to be transported or delivered for transportation in interstate commerce, provided that the records of the person charged with the duty under said section of labeling or invoicing the seeds, kept in accordance with the rules and regulations of the Secretary of Agriculture, together with other pertinent facts, disclose that said person has taken all proper precautions to insure the identity to be that stated.

DISCLAIMERS AND NONWARRANTIES

SEC. 204. The use of a disclaimer, limited warranty, or nonwarranty clause in any invoice, advertising, labeling, or written, printed, or graphic matter, pertaining to any seed shall not constitute a defense, or be used as a defense in any way, in any prosecution or other proceeding brought under the provisions of this Act, or the rules and regulations made and promulgated thereunder. Nothing in this section is intended to preclude the use of a disclaimer, limited warranty, or nonwarranty clause as a defense in any proceeding not brought under this Act.

FALSE ADVERTISING

SEC. 205. It shall be unlawful for any person to disseminate, or cause to be disseminated, any false advertisement concerning seed, by the United States mails, or in interstate or foreign commerce, in any manner or by any means, including radio broadcasts: *Provided, however,* That no person, advertising agency, or medium for the dissemination of advertising, except the person who transported, delivered for transportation, sold, or offered for sale, seed to which the false advertisement relates, shall be liable under this section by reason of disseminating or causing to be disseminated any false advertisement, unless he or it has refused, on the request of the Secretary of Agriculture, to furnish the Secretary the name and post-office address of the person, or advertising agency, residing in the United States, who caused, directly or indirectly, the dissemination of such advertisement.

TITLE III—FOREIGN COMMERCE

PROHIBITIONS AND PROCEDURES RELATING TO IMPORTATIONS

SEC. 301. (a) The importation into the United States is prohibited of—

(1) any seed containing 10 per centum or more of any agricultural or vegetable seeds if any such seed is adulterated or unfit for seeding purposes, or is required to be stained and is not so stained, under the terms of this title, or the labeling of which is false or misleading in any respect;

(2) screenings of any seeds subject to title III of this Act (except that this shall not apply to screenings of wheat, oats, rye, barley, buckwheat, field corn, sorghum, broomcorn, flax, millet, proso, soybeans, cowpeas, field peas, or field beans, which are not imported for seeding purposes and are declared for cleaning, processing, or manufacturing purposes, and not for seeding purposes);

(3) any seed containing 10 per centum or more of the seeds of alfalfa or red clover, which has been stained prior to being offered for entry in a manner that does not permit compliance with the provisions of this title and the regulations made and promulgated thereunder.

(4) any seed containing 10 per centum or more of any vegetable seeds unless the invoice pertaining to such seed and any other labeling of such seed bear the name of each kind and variety of vegetable seed present.

SEC. 302. (a) The Secretary of the Treasury shall deliver to the Secretary of Agriculture, subject to joint rules and regulations prescribed under section 402

of this Act, samples of seed and screenings which are being imported into the United States, or offered for import, giving notice thereof to the owner or consignee, and if it appears from the examination of such samples that any seed or screenings offered to be imported into the United States are subject to the provisions of this title and do not comply with the provisions of this title, or if the labeling of such seed is false or misleading in any respect, such seed or screenings shall be refused admission, and the Secretary of the Treasury shall refuse delivery to the owner or consignee, who may appear, however, before the Secretary of Agriculture and show cause why the seed or screenings should be admitted. Seed or screenings refused admission and not exported by the owner or consignee within twelve months from the date of notice of such refusal shall be destroyed in accordance with joint rules and regulations prescribed under section 402 of this Act: *Provided*, That the Secretary of the Treasury may authorize the delivery of seed or screenings which are being imported or offered for import to the owner or consignee thereof, pending decision as to the admission of such seed or screenings and for staining, cleaning, labeling, or other reconditioning if required to bring such seed or screenings into compliance with the provisions of this Act, upon the execution by such owner or consignee of a good and sufficient bond conditioned upon redelivery of the seed or screenings upon demand unless redelivery is waived because the seed is reconditioned to bring it into compliance with this Act or is destroyed under Government supervision under this Act, and providing for the payment of such liquidated damages in the event of default as may be required pursuant to regulations of the Secretary of the Treasury: *And provided further*, That all expenses incurred by the United States (including travel, per diem or subsistence, and salaries of officers or employees of the United States) in connection with the supervision of staining, cleaning, labeling, other reconditioning, or destruction, of seed or screenings under this title shall be reimbursed to the United States by the owner or consignee of the seed or screenings, and such reimbursements shall be recredited to the appropriation from which the expenses were paid, the amount of such expenses to be determined in accordance with joint regulations under section 402 of this Act, and all expenses in connection with the storage, cartage, and labor on the seed or screenings which are refused admission or delivery, shall be paid by the owner or consignee, and in default of such payment shall constitute a lien against future importations made by such owner or consignee.

(b) The refuse from any seeds or screenings which are allowed to be cleaned under bond shall be destroyed in accordance with joint rules and regulations prescribed under section 402 of this Act.

(c) The provisions of this title shall not apply—

(1) when seed is shipped in bond through the United States, or

(2) when the Secretary of Agriculture finds that a substantial proportion of the importations of any kind of seed is used for other than seeding purposes, and he provides by rules and regulations that seed of such kind not imported for seeding purposes shall be exempted from the provisions of the Act: *Provided*, That importations of such kinds of seed shall be accompanied by a declaration setting forth the use for which imported when and as required under joint rules and regulations prescribed under section 402 of this Act.

(d) The provisions of this title prohibiting the importation of seed that is adulterated or unfit for seeding purposes shall not apply—

(1) when seed grown in the United States is returned from a foreign country without having been admitted into the commerce of any foreign country: *Provided*, That there is satisfactory proof as provided for in the joint rules and regulations prescribed under section 402 of this Act, that the seed was grown in the United States and was not admitted into the commerce of a foreign country and was not commingled with other seed, or

(2) when seed is imported for sowing for experimental or breeding purposes and not for sale: *Provided*, That declarations are filed, and importations are limited in quantity, as provided for in the rules and regulations prescribed under section 402 of this Act, to assure that the importations are for experimental or breeding purposes.

ADULTERATED SEED

SEC. 303. Seed subject to the provisions of section 301 is adulterated if any kind of such seed contains more than 5 per centum by weight of seed or seeds of another kind or kinds of similar appearance: *Provided*, That the mixture of

the seed of white and alsike clover, or red clover and alsike clover, shall not be deemed to be adulterated, and that other seed mixtures of similar kinds of seeds of similar appearance, shall not be deemed to be adulterated when the Secretary of Agriculture finds and prescribes by order that the importation of such seed mixtures for planting is not detrimental to the user of such seeds.

SEED UNFIT FOR SEEDING PURPOSES

SEC. 304. Seed subject to the provisions of section 301 is unfit for seeding purposes—

(a) If any such seed contains noxious-weed seed at a rate in excess of—

(1) one noxious-weed seed in each ten grams of the seed of timothy, orchard grass, brome grass, crested wheatgrass, slender wheatgrass, ryegrass, sweet-clover, alfalfa, millet, rape, flax, clovers, and species of *Agrostis*, *Festuca*, or *Poa*, or any kind of seed of a size and weight similar to or less than those named;

(2) one noxious-weed seed in each twenty-five grams of the seed of sorghum, Sudan grass, and buckwheat, or any kind of seed of a size and weight greater than the seeds referred to in (a) (1) but less than seeds referred to in (a) (3) of this section;

(3) one noxious-weed seed in each one hundred grams of the seed of wheat, oats, rye, barley, vetches, and corn, or any seed of a size and weight similar to or greater than such seed.

(b) If any such seed contains more than 2 per centum by weight of weed seeds; or

(c) If any such seed contains less than 75 per centum of pure live seed, or if any component of such seed present to the extent of 10 per centum or more contains less than 75 per centum of live seed: *Provided*, That when the Secretary of Agriculture shall find that any such seed or any kind of seed present to the extent of 10 per centum or more cannot be produced to contain 75 per centum of pure live seed, he may set up such standard from time to time for pure live seed as he finds can be produced.

CERTAIN SEEDS REQUIRED TO BE STAINED

SEC. 305. (a) Any seed containing 10 per centum or more of the seeds of alfalfa and/or red clover, subject to the provisions of section 301, shall be stained in such manner and to such extent as the Secretary of Agriculture by regulation may prescribe and, when practicable, the color produced by such stain shall indicate the country or region of origin.

(b) Whenever the Secretary of Agriculture, after public hearing, determines that seed of alfalfa or red clover from any foreign country or region is not adapted for general agricultural use in the United States, he shall publish such determination. On and after the expiration of ninety days after the date of such publication, and until such determination is revoked, 10 per centum or more of the seeds in each container of such alfalfa or red clover seed, or any seed containing 10 per centum or more of such alfalfa or red clover seed, shall be stained a red color, in accordance with such regulations as the Secretary of Agriculture may prescribe.

(c) Whenever the origin of the seed of alfalfa or of red clover present in excess of 10 per centum in any seed subject to section 301 of this Act is unestablished, 10 per centum of the seed in each container shall be stained a red color.

(d) Whenever the seeds of alfalfa or of red clover of different origins are present in excess of 10 per centum in any seed subject to section 301 of this Act, and different colors are required by reason of such different origins, 10 per centum of the seed in each container shall be stained red.

(e) Whenever any seed required to be stained under the provisions of this Act is commingled with seed of the same kind grown in the United States, the seed in each container thereof shall be stained 10 per centum red.

CERTAIN ACTS PROHIBITED

SEC. 306. It shall be unlawful for any person—

(a) To sell or offer for sale—

(1) any seed for seeding purposes if imported under this title for other than seeding purposes;

(2) any screenings of any seeds for seeding purposes if imported under this title for other than seeding purposes;

(3) any seed which is prohibited entry under the provisions of this Act;
 (4) any seed which has been stained to resemble seed stained in accordance with the provisions of this Act and the rules and regulations made and promulgated thereunder;

(5) any seed stained under the provisions of this Act and the rules and regulations made and promulgated thereunder, when mixed with seed of the same kind produced in the United States;

(6) any seed stained with different colors;

(7) any seed stained under the provisions of this Act, the labeling of which states that such seed is adapted.

(b) To change the proportion of seeds stained under the provisions of this Act and the rules and regulations made and promulgated thereunder, or to alter, modify, conceal, or remove in any manner or by any means the color of such stained seeds.

(c) To make any false or misleading representation with respect to any seed subject to this title being imported into the United States or offered for import: *Provided*, That this subsection shall not be deemed violated by any person if the false or misleading representation is the name of a variety indistinguishable in appearance from the seed being imported or offered for import and the records and other pertinent facts reveal that such person relied in good faith upon representations with respect to the name of the indistinguishable variety made by the shipper of the seed.

TITLE IV—GENERAL PROVISIONS

DELEGATION OF DUTIES

SEC. 401. Any duties devolving upon the Secretary of Agriculture by virtue of the provisions of this Act may with like force and effect be executed by such officer or officers, agent or agents, of the Department of Agriculture as the Secretary may designate for the purpose.

RULES AND REGULATIONS

SEC. 402. (a) The Secretary of Agriculture shall make such rules and regulations as he may deem necessary for the effective enforcement of this Act, except as otherwise provided in this section.

(b) The Secretary of the Treasury and the Secretary of Agriculture shall make, jointly or severally, such rules and regulations as they may deem necessary for the effective enforcement of title III of this Act.

(c) Prior to the promulgation of any rule or regulation under this Act, due notice shall be given by publication in the Federal Register of intention to promulgate and the time and place of a public hearing to be held with reference thereto, and no rule or regulation may be promulgated until after such hearing. Any rule or regulation shall become effective on the date fixed in the promulgation, which date shall be not less than thirty days after publication in the Federal Register, and may be amended or revoked in the manner provided for its promulgation.

STANDARDS, TESTS, AND TOLERANCES

SEC. 403. (a) The samplings, analyses, tests, or examinations of seeds made in connection with the administration of this Act shall be made by methods set forth by rules and regulations prescribed under section 402 of this Act.

(b) The Secretary of Agriculture is authorized and directed to make and promulgate by rules and regulations, reasonable tolerances as to the percentages and rates of occurrence required to be stated or required by this Act.

(c) For the purpose of section 201 (b) of this Act, the Secretary of Agriculture is authorized and directed to investigate, determine, establish, and promulgate from time to time such reasonable standards of germination for each kind of vegetable seed as will in his judgment best protect crop production.

PROHIBITION AGAINST ALTERATIONS

SEC. 404. No person shall detach, alter, deface, or destroy any label provided for in this Act or the rules and regulations made and promulgated thereunder by the Secretary of Agriculture, or alter or substitute seed in a manner that may defeat the purpose of this Act.

SEIZURE

SEC. 405. (a) Any seed sold, delivered for transportation in interstate commerce, or transported in interstate or foreign commerce in violation of any of the provisions of this Act shall, at the time of such violation or at any time thereafter, be liable to be proceeded against on libel of information and condemned in any district court of the United States within the jurisdiction of which the seed is found.

(b) If seed is condemned by a decree of the court as being in violation of the provisions of this Act, it may be disposed of by the court by—

(1) sale; or

(2) delivery to the owner thereof after he has appeared as claimant and paid the court costs and fees and storage and other proper expenses and executed and delivered a bond with good and sufficient sureties that such seed will not be sold or disposed of in any jurisdiction contrary to the provisions of this Act and the rules and regulations made and promulgated thereunder, or the laws of such jurisdiction; or

(3) destruction.

(c) If such seed is disposed of by sale, the proceeds of the sale, less the court costs and fees and storage and other proper expenses, shall be paid into the Treasury as miscellaneous receipts, but such seed shall not be sold or disposed of in any jurisdiction contrary to the provisions of this Act and the rules and regulations made and promulgated thereunder, or the laws of such jurisdiction.

(d) The proceedings in such libel cases shall conform, as nearly as may be, to the proceedings in admiralty, except that either party may demand trial by jury of any issue of fact joined in any such case; and such proceedings shall be at the suit of and in the name of the United States.

PENALTIES

SEC. 406.¹ (a) Any person who knowingly, or as a result either of gross negligence or of a failure to make a reasonable effort to inform himself of the pertinent facts, violates any provision of this Act or the rules and regulations made and promulgated thereunder shall be deemed guilty of a misdemeanor and, upon conviction thereof, shall pay a fine of not more than \$1,000, for the first offense, and upon conviction for each subsequent offense not more than \$2,000.

(b) Any person who violates any provision of this Act or the rules and regulations made and promulgated thereunder shall forfeit to the United States a sum, not less than \$25 or more than \$500, for each such violation, which forfeiture shall be recoverable in a civil suit brought in the name of the United States.

SEC. 407. When construing and enforcing the provisions of this Act, the act, omission, or failure of any officer, agent, or other person acting for or employed by any person, partnership, corporation, company, society, or association, shall in every case be also deemed to be the act, omission, or failure of such person, partnership, corporation, company, society, or association, as well as that of the person employed.

SEC. 408. Before any violation of this Act is reported by the Secretary of Agriculture to any United States attorney for institution of a criminal proceeding, the person against whom such proceeding is contemplated shall be given appropriate notice and an opportunity to present his views, either orally or in writing, with regard to such contemplated proceeding.

CEASE AND DESIST PROCEEDINGS

SEC. 409.(a) Whenever the Secretary of Agriculture has reason to believe that any person has violated or is violating any of the provisions of this Act or the rules and regulations made and promulgated thereunder, he shall cause a complaint in writing to be served upon the person, stating his charges in that respect, and requiring the person to attend and testify at a hearing at a time and place designated therein, at least thirty days after the service of such complaint; and at such time and place there shall be afforded the person a reasonable opportunity to be informed as to the evidence introduced against him (including the right of cross-examination), and to be heard in person or by

¹ Amended by Public Law 662, 84th Congress (70 Stat. 508) approved July 9, 1956.

counsel and through witnesses, under such rules and regulations as the Secretary of Agriculture may prescribe. At any time prior to the close of the hearing the Secretary of Agriculture may amend the complaint; but in case of any amendment adding new provisions the hearing shall, on the request of the person, be adjourned for a period not exceeding fifteen days.

(b) If, after such hearing, the Secretary of Agriculture finds that the person has violated or is violating any provisions of the Act or rules and regulations covered by the charges, he shall make a report in writing in which he shall state his findings as to the facts, and shall issue and cause to be served on the person an order requiring such person to cease and desist from continuing such violation. The testimony taken at the hearing shall be reduced to writing and filed in the records of the Department of Agriculture.

(c) Until the record in such hearing has been filed in a court of appeals as provided in section 410, the Secretary of Agriculture at any time, upon such notice and in such manner as he deems proper, but only after reasonable opportunity to the person to be heard, may amend or set aside the report or order, in whole or in part.

(d) Complaints, orders, and other processes of the Secretary of Agriculture under this section may be served by anyone duly authorized by the Secretary of Agriculture, either (1) by delivering a copy thereof to the person to be served, or to a member of the partnership to be served, or to the president, secretary, or other executive officer or a director of the corporation to be served; or (2) by leaving a copy thereof at the principal office or place of business of such person, partnership, or corporation; or (3) by registering and mailing a copy thereof addressed to such person, partnership, or corporation at his or its last known principal office or place of business. The verified return by the person so serving said complaint, order, or other process setting forth the manner of said order shall be proof of the same, and the return post-office receipt for said complaint, order, or other process registered and mailed, as aforesaid shall be proof of the service of the same.

SEC. 410. An order made under section 409 shall be final and conclusive unless within thirty days after the service the person appeals to the United States court of appeals for the circuit in which such person resides or has his principal place of business by filing with the clerk of such court a written petition praying that the Secretary's order be set aside or modified in the manner stated in the petition, together with a bond in such sum as the court may determine, conditioned that such person will pay the costs of the proceedings if the court so directs.

The clerk of the court shall immediately cause a copy of the petition to be delivered to the Secretary, and the Secretary shall thereupon file in the court the record in such proceedings, as provided in section 2112 of title 28, United States Code. If before such record is filed, the Secretary amends or sets aside his report or order, in whole or in part, the petitioner may amend the petition within such time as the court may determine, on notice to the Secretary.

At any time after such petition is filed the court, on application of the Secretary, may issue a temporary injunction restraining, to the extent it deems proper, the person and his officers, directors, agents, and employees from violating any of the provisions of the order pending the final determination of the appeal.

The evidence so taken or admitted and filed as aforesaid as a part of the record, shall be considered by the court as the evidence in the case. The proceedings in such cases in the court of appeals shall be made a preferred cause and shall be expedited in every way.

The court may affirm, modify, or set aside the order of the Secretary.

If the court determines that the just and proper disposition of the case requires the taking of additional evidence, the court shall order the hearing to be reopened for the taking of such evidence in such manner and upon such terms and conditions as the court may deem proper. The Secretary may modify his findings as to the facts, or make new findings, by reason of the additional evidence so taken, and he shall file such modified or new findings and his recommendations, if any, for the modification or setting aside of his order, with the return of such additional evidence.

If the United States court of appeals affirms or modifies the order of the Secretary, its decree shall operate as an injunction to restrain the person and his officers, directors, agents, and employees from violating the provisions of such order or such order as modified.

SEC. 411. If any person against whom an order is issued under section 409 fails to obey the order, the Secretary of Agriculture, or the United States, by its Attorney General, may apply to the court of appeals of the United States, within the circuit where the person against whom the order was issued resides or has his principal place of business, for the enforcement of the order, and shall file the record in such proceedings, as provided in section 2112 of title 28, United States Code. Upon such filing of the application the court shall cause notice thereof to be served upon the person against whom the order was issued. The evidence to be considered, the procedure to be followed, and the jurisdiction of the court shall be the same as provided in section 410 for applications to set aside or modify orders.

The proceedings in such cases shall be made a preferred cause and shall be expedited in every way.

SEPARABILITY OF PROCEEDINGS

SEC. 412. The institution of any one of the proceedings provided for in sections 405, 406, 409, 410, and 411, shall not bar institution of any of the others, except that action shall not be instituted under both subsections 406 (a) and (b) for the same cause of action. Nothing in this Act shall be construed as requiring the Secretary of Agriculture to recommend prosecution or institution of civil penalty proceedings, libel proceedings, cease-and-desist proceedings, or proceedings for the enforcement of a cease-and-desist order, for minor violations of this Act or the rules and regulations made and promulgated thereunder whenever he believes that the public interest will be adequately served by suitable written notice or warning.

SEC. 413. (a) In carrying on the work herein authorized, the Secretary of Agriculture, or any officer or employee designated by him for such purpose, shall have power to hold hearings, administer oaths, sign and issue subpoenas, examine witnesses, take depositions, and require the production of books, records, accounts, memoranda, and papers, and have access to office and warehouse premises. Upon refusal by any person to appear, testify, or produce pertinent books, records, accounts, memoranda, and papers in response to a subpoena, or to permit access to premises, the proper United States district court shall have power to compel obedience thereto.

(b) Witnesses summoned before the Secretary or any officer or employee designated by him shall be paid the same fees and mileage that are paid witnesses in the courts of the United States, and witnesses whose depositions are taken and the persons taking the same shall severally be entitled to the same fees as are paid for like service in the courts of the United States.

PUBLICATION

SEC. 414. After judgment by the court, or the issuance of a cease and desist order, in any case arising under this Act, notice thereof shall be given by publication in such manner as may be prescribed in the rules and regulations made and promulgated under this Act.

AUTHORIZATION FOR APPROPRIATIONS

SEC. 415. (a) There is hereby authorized to be appropriated, out of any money in the Treasury not otherwise appropriated, such sums as may be necessary for administering this Act.

(b) Funds appropriated for carrying into effect the purpose of this Act shall be available for allotment by the Secretary of Agriculture to the bureaus and offices of the Department of Agriculture and for transfer to other departments and agencies of the Government which the Secretary of Agriculture may call upon to assist or cooperate in carrying out such purposes or for services rendered or to be rendered in connection therewith.

Appropriations made under this authorization, within the limit prescribed in such appropriations, may be expended for the share of the United States in the expense of the International Seed Testing Congress in carrying out plans for correlating the work of the various adhering governments on problems relating to seed analyses or other subjects which the Congress may determine to be necessary in the interest of international seed trade.

AUTHORIZATION FOR EXPENDITURES

SEC. 416. The Secretary of Agriculture is authorized to make such expenditures for rent, outside of the District of Columbia, printing, binding, telegrams,

telephones, books of reference, publication, furniture, stationery, office and laboratory equipment, travel and other supplies, including reporting services, such research necessary to develop methods of processing, bulking, blending, sampling, testing, and merchandising seeds necessary to the administration of this Act and other necessary expenses in the District of Columbia and elsewhere, and as may be appropriated for by the Congress.

COOPERATION

SEC. 417. The Secretary of Agriculture is authorized to cooperate with any other department or agency of the Federal Government; or with any State, Territory, District, or possession, or department, agency, or political subdivision thereof; or with any producing, trading, or consuming organization, whether operating in one or more jurisdictions, in carrying out the provisions of this Act.

SEPARABILITY OF PROVISIONS

SEC. 418. If any provisions of this Act, or the application thereof to any person or circumstance, is held invalid, the remainder of the Act, and the application of such provisions to other persons or circumstances, shall not be affected thereby.

REPEALS

SEC. 419. The Importation of Adulterated Seeds Act, approved August 24, 1912, as amended August 11, 1916, and as amended April 26, 1926 (7 U. S. C., 111-116, inclusive), is hereby repealed on the one hundred and eightieth day after the passage of this Act: *Provided, however,* That the notices with respect to imported alfalfa and red clover seed promulgated by the Secretary of Agriculture under the authority of the Importation of Adulterated Seeds Act, approved August 24, 1912, as amended (7 U. S. C., 111-116, inclusive), and now in effect, shall remain with the same full force and effect as if promulgated under this Act.

EFFECTIVE DATE

SEC. 420. This Act shall take effect as follows: As to agricultural seeds, and the importation of vegetable seeds, on the one hundred and eightieth day after its enactment; as to vegetable seeds in interstate commerce, one year after its enactment; and as to sections 401, 402, and 403, on the date of its enactment.

Approved, August 9, 1939.

